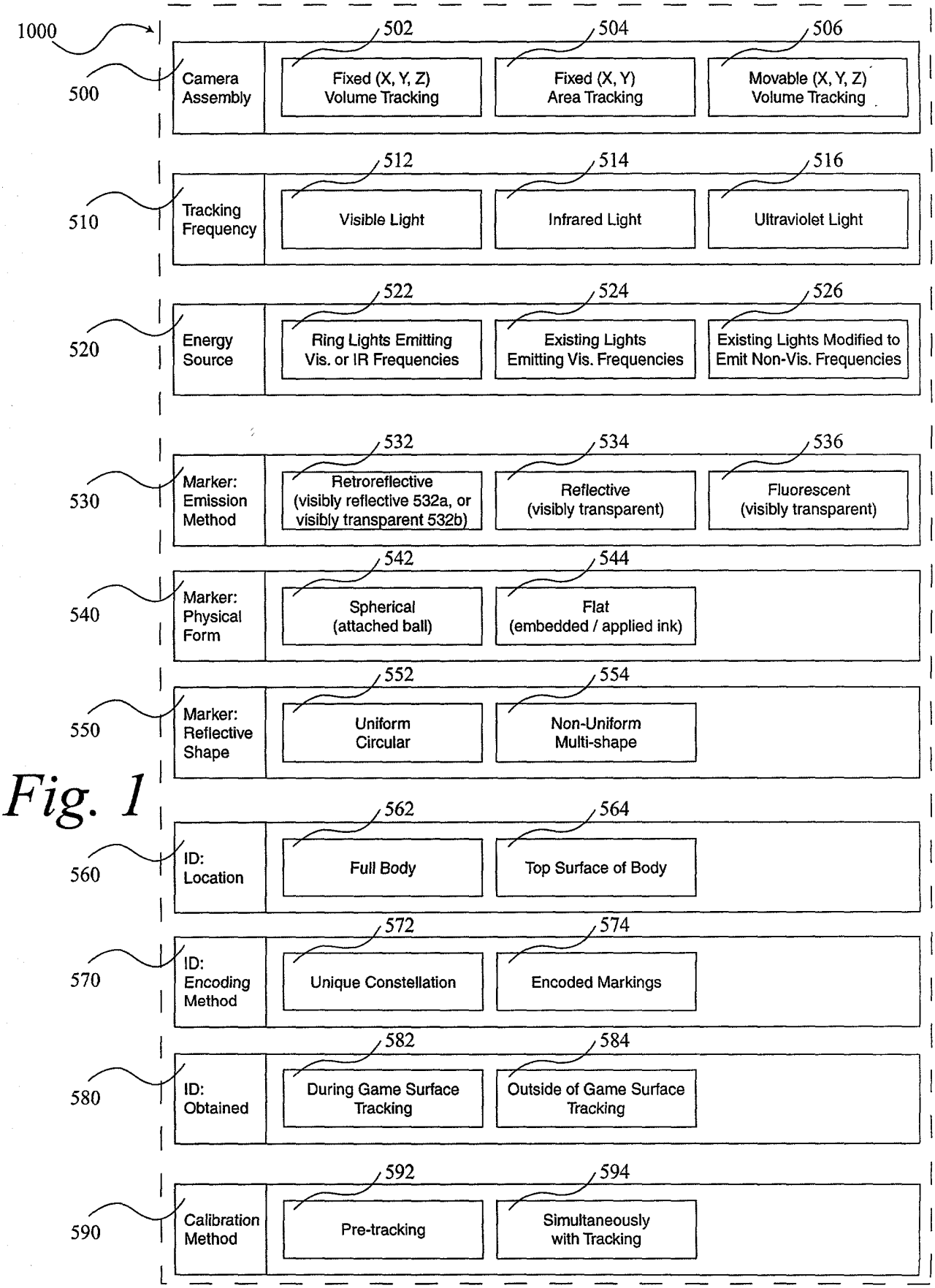

Fig. 1

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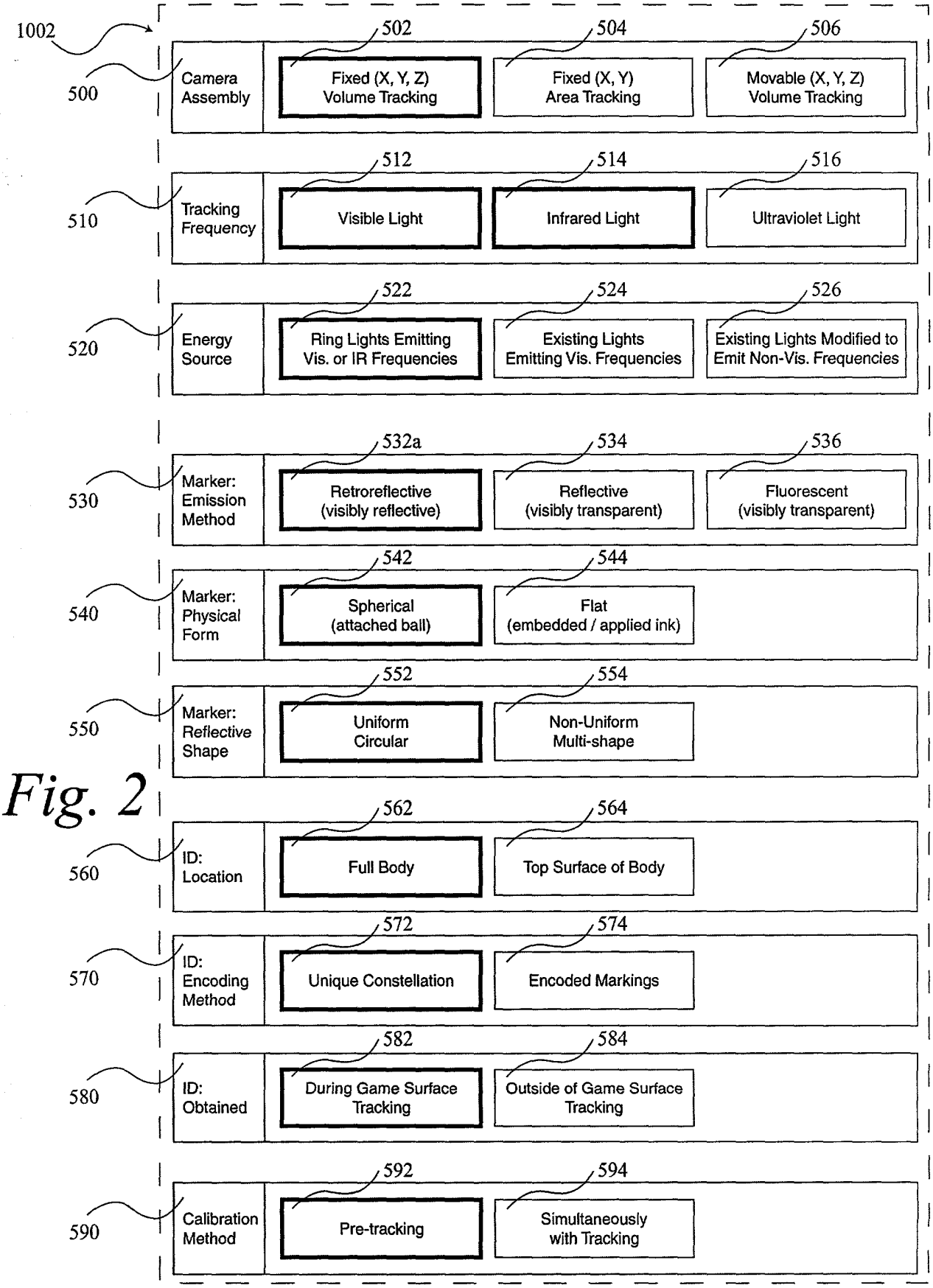
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Visible Light
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Infrared Light
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Ultraviolet Light
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Energy Source
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Ring Lights Emitting Vis. or IR Frequencies
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Existing Lights Emitting Vis. Frequencies
526
Existing Lights Modified to Emit Non-Vis. Frequencies
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Marker: Emission Method
532a
Retroreflective (visibly reflective)
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Reflective (visibly transparent)
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Fluorescent (visibly transparent)
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Marker: Physical Form
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Spherical (attached ball)
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Flat (embedded / applied ink)
550
Marker: Reflective Shape
552
Uniform Circular
554
Non-Uniform Multi-shape
560
ID: Location
562
Full Body
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Top Surface of Body
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ID: Encoding Method
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Unique Constellation
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Encoded Markings
580
ID: Obtained
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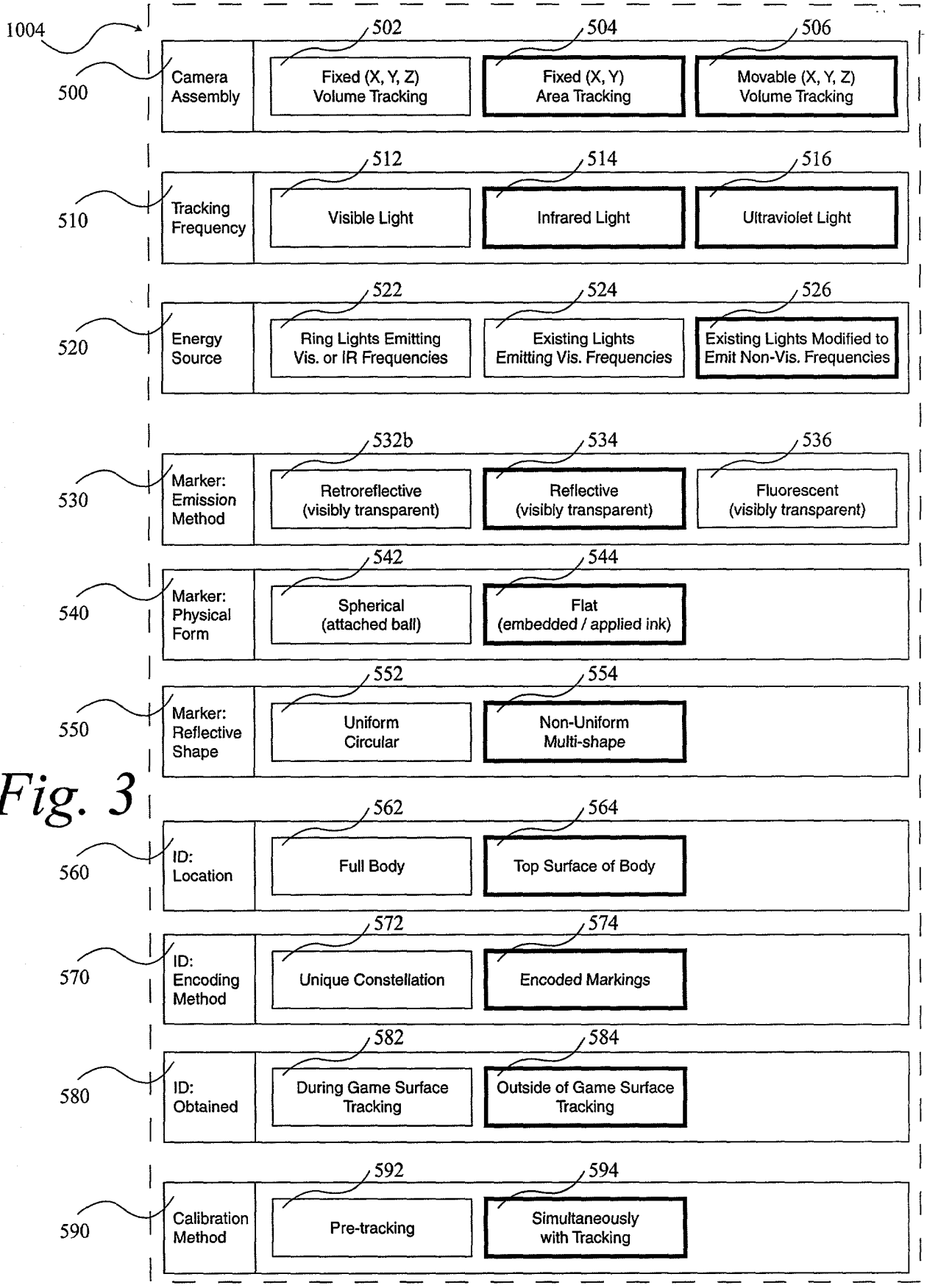
During Game Surface Tracking
584
Outside of Game Surface Tracking
590
Calibration Method
592
Pre-tracking
594
Simultaneously with Tracking

Fig. 2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Calibration Method
592
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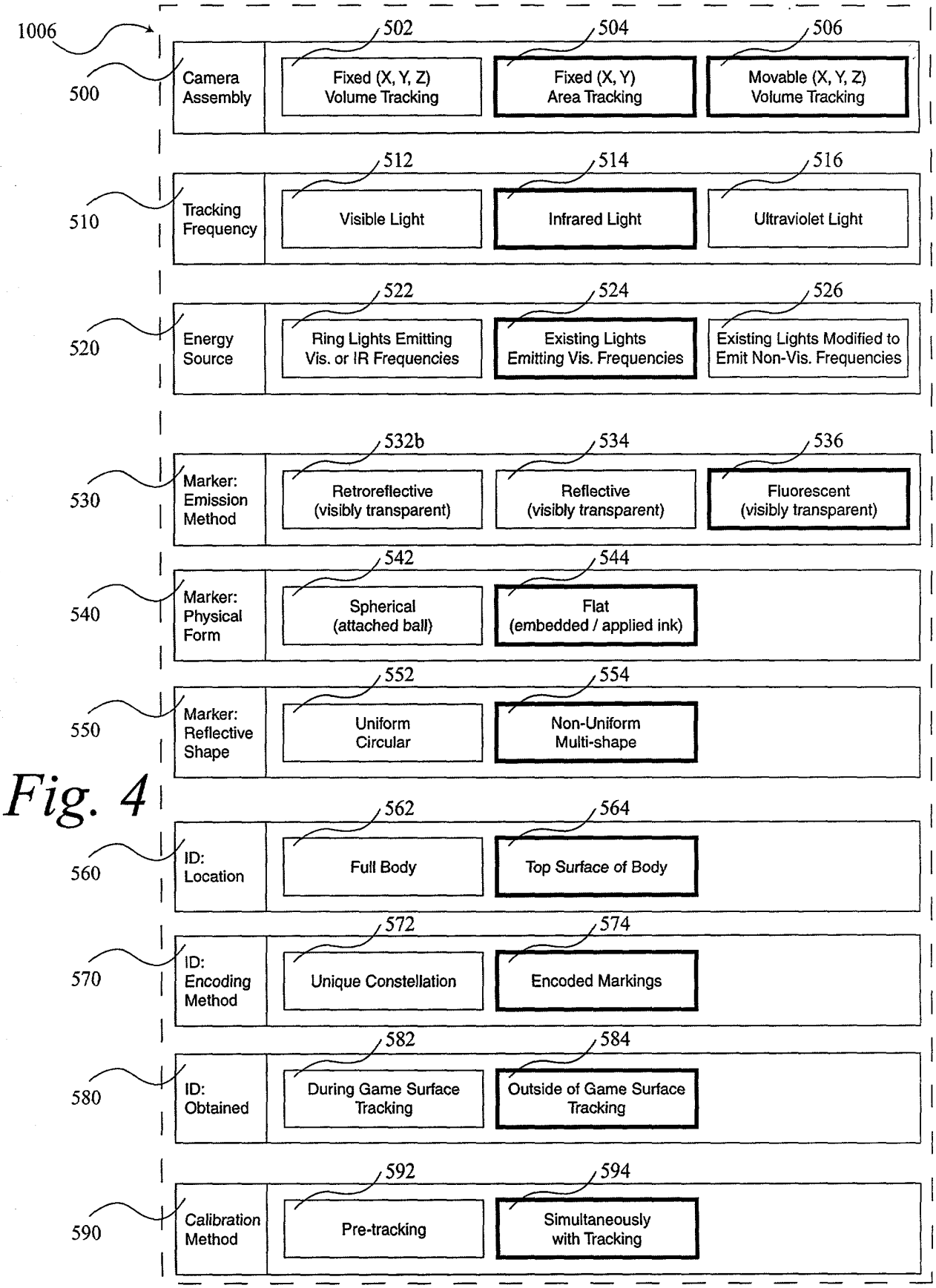
Simultaneously with Tracking

Fig. 3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ID: Obtained
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Pre-tracking
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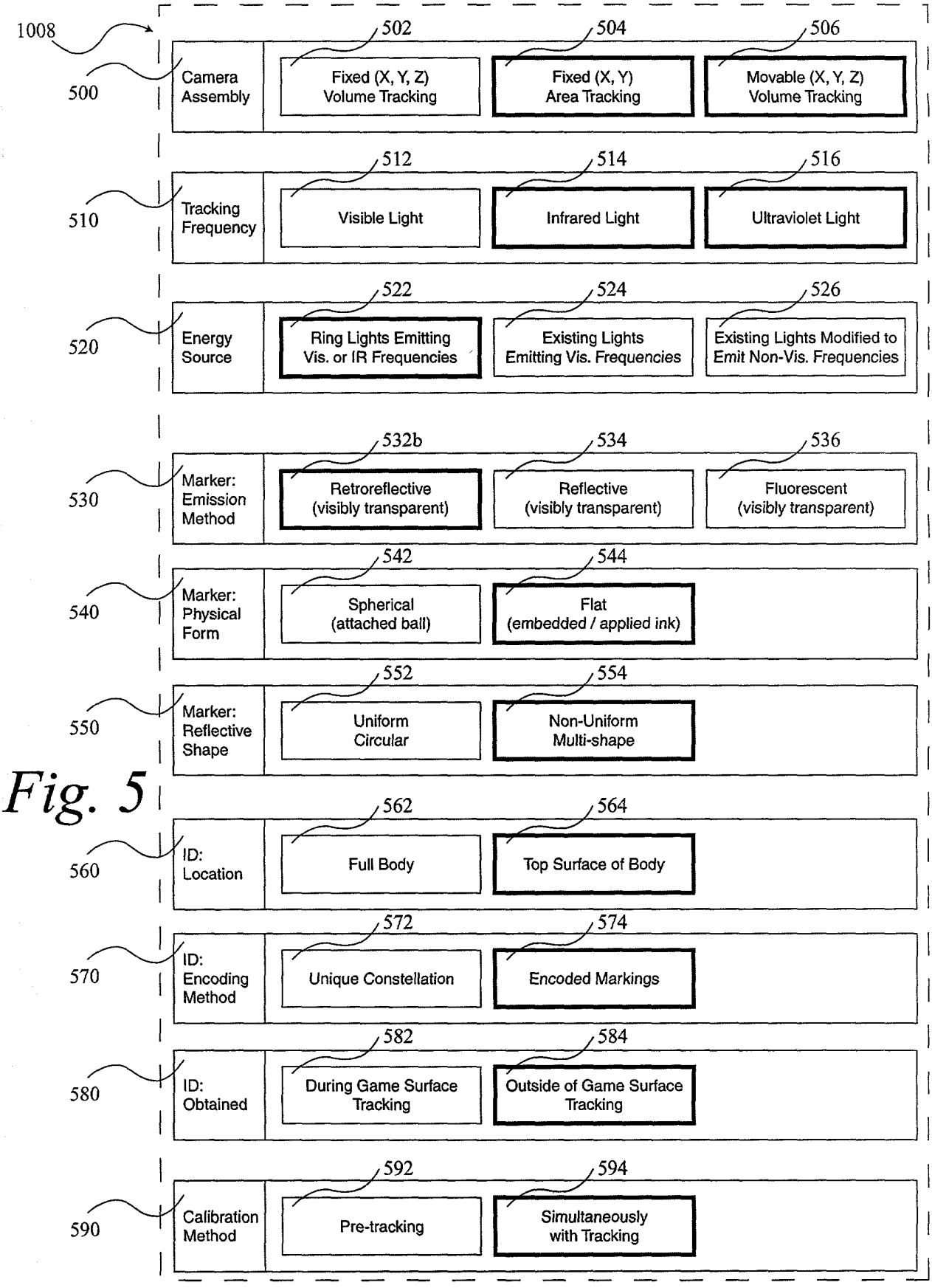
Simultaneously with Tracking

Fig. 4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Fixed (X, Y) Area Tracking
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Movable (X, Y, Z) Volume Tracking
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Tracking Frequency
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Visible Light
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Unique Constellation
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Calibration Method
592
Pre-tracking
594
Simultaneously with Tracking

Fig. 5

Attorney Docket: Beeby

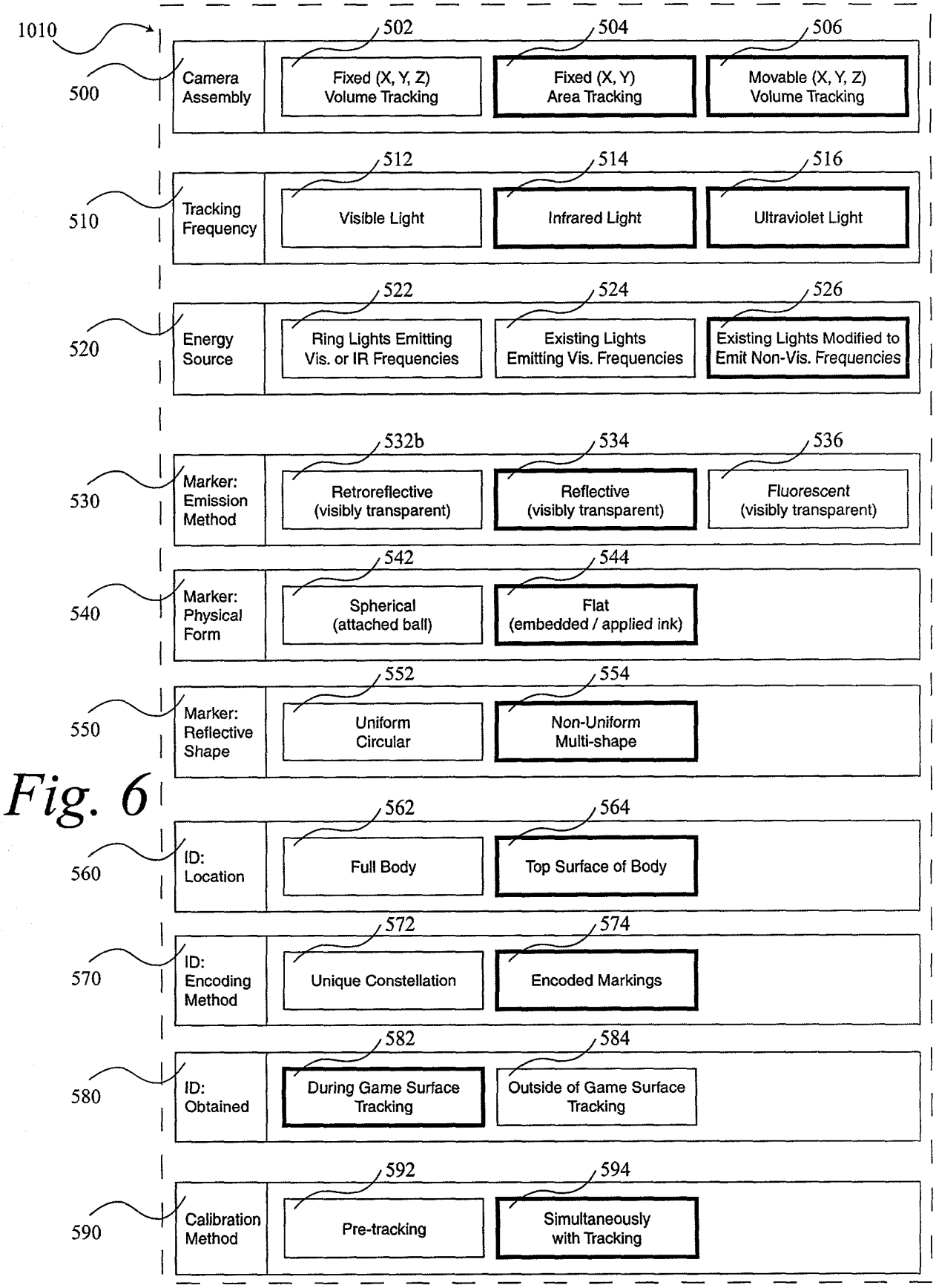
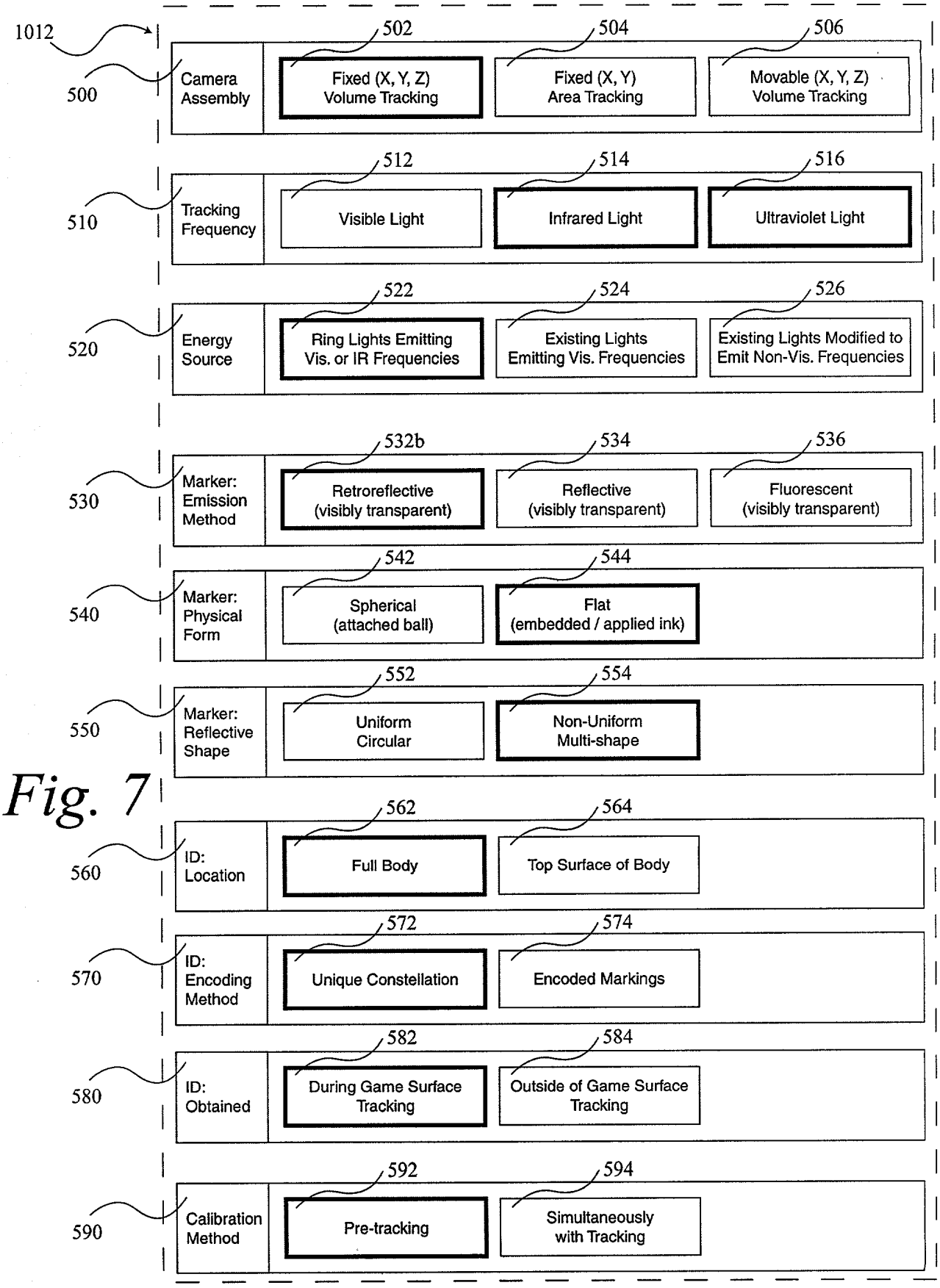


Fig. 6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592
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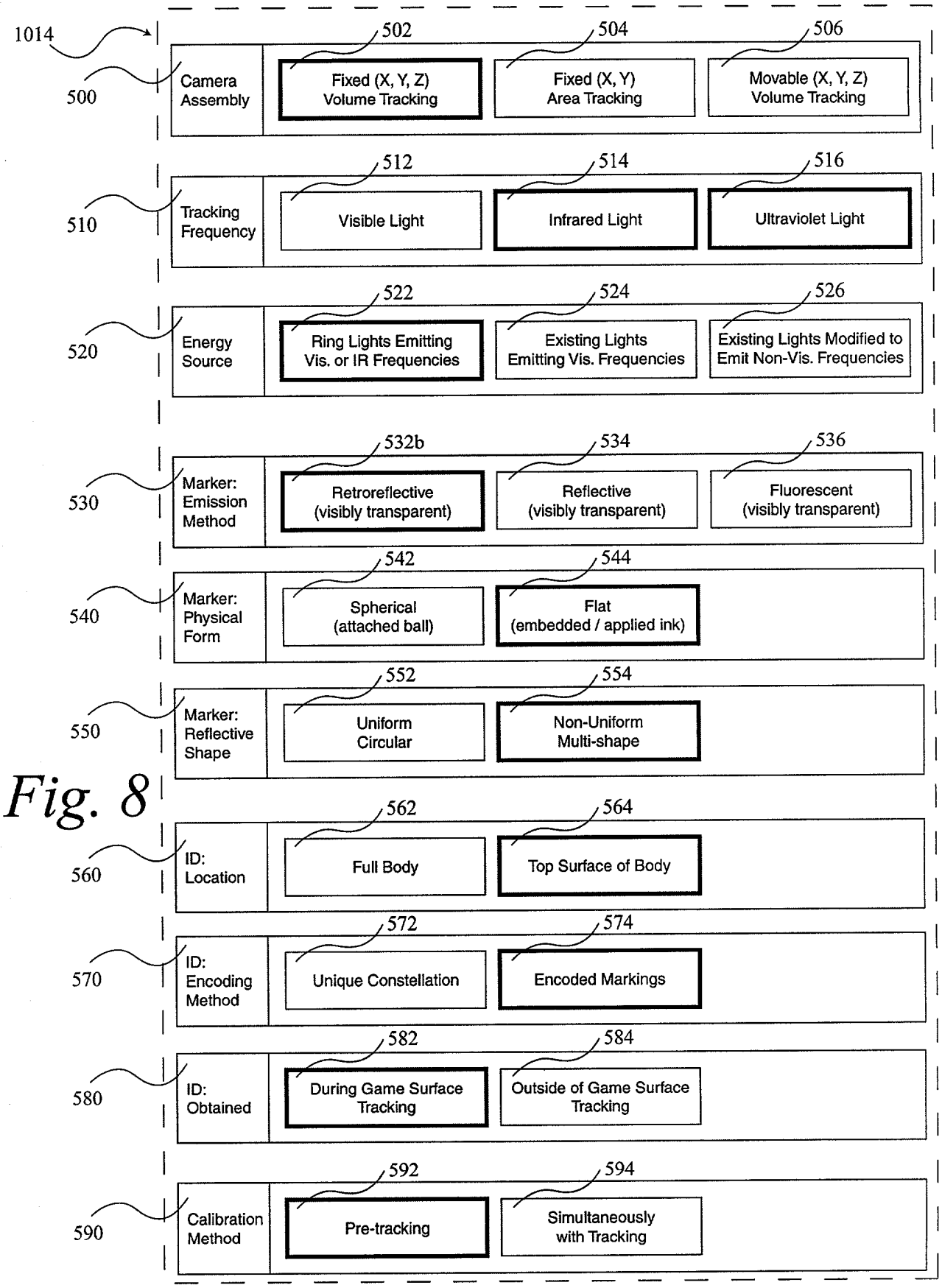
594
Simultaneously with Tracking

Fig. 7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Calibration Method
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Pre-tracking
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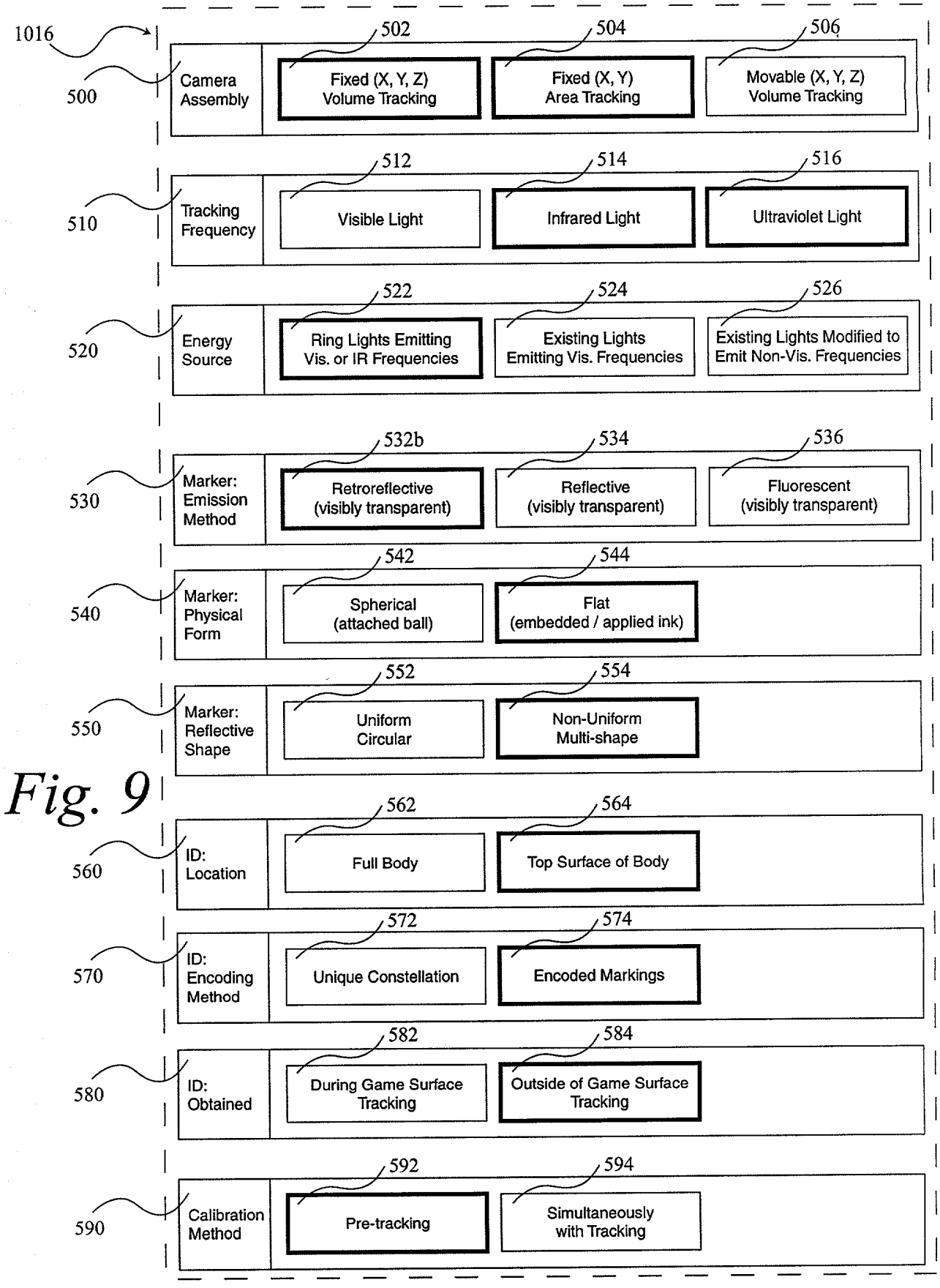
Simultaneously with Tracking

Fig. 8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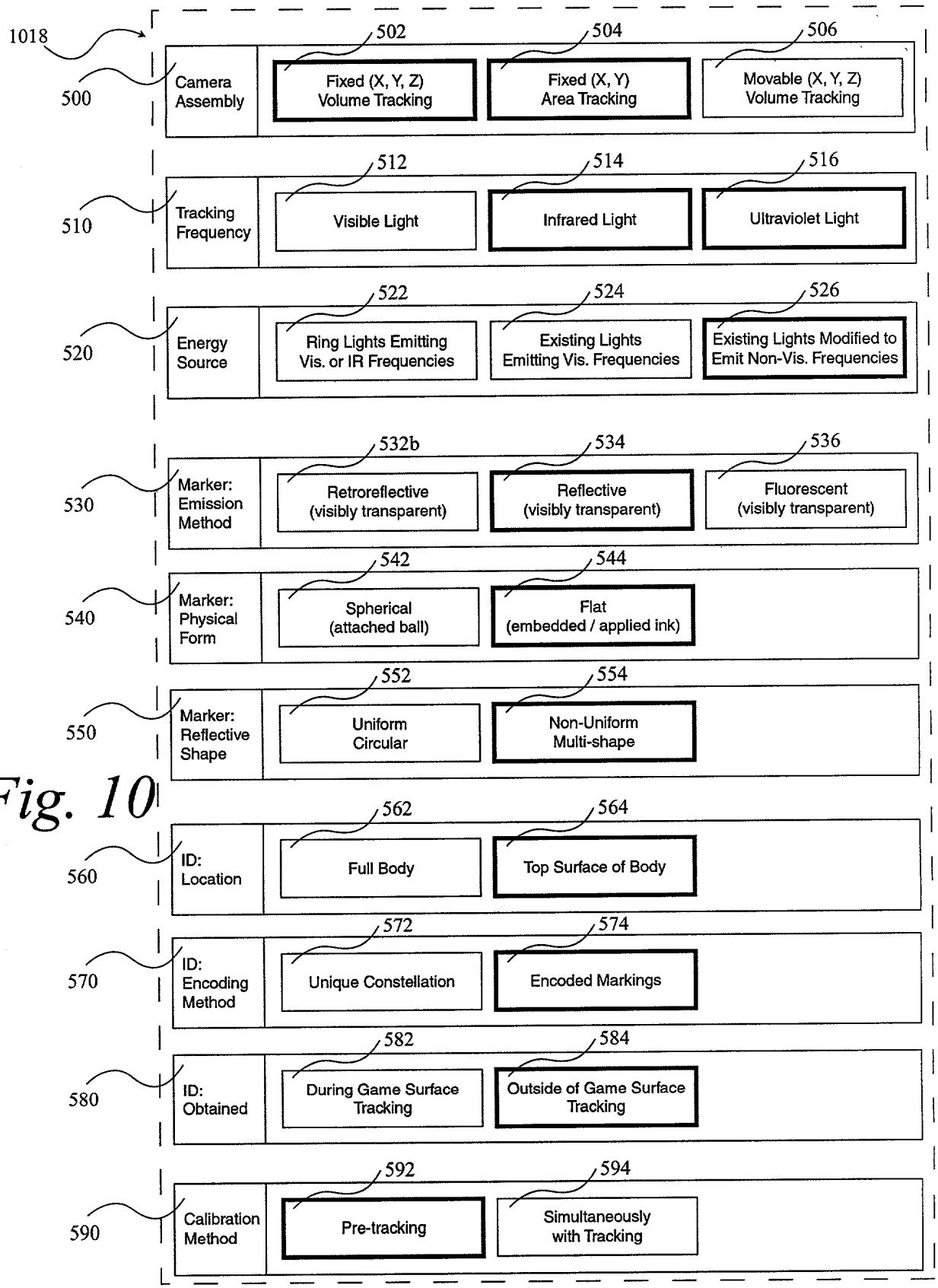
Simultaneously with Tracking

Fig. 9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Visible Light
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Outside of Game Surface Tracking
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Calibration Method
592
Pre-tracking
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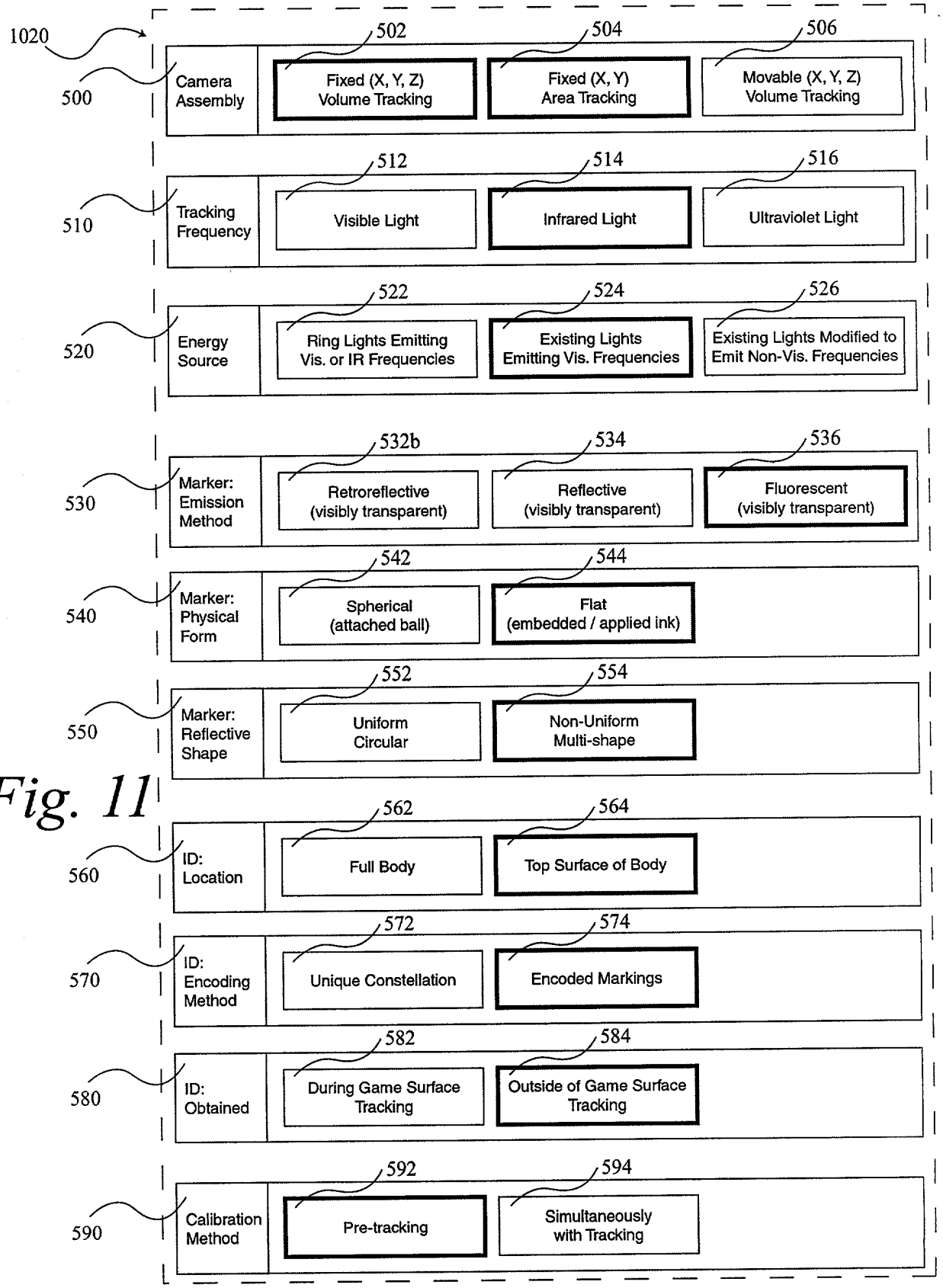
Simultaneously with Tracking

Fig. 10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Movable (X, Y, Z) Volume Tracking
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Tracking Frequency
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Visible Light
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Infrared Light
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Ultraviolet Light
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ID: Location
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Unique Constellation
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Encoded Markings
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ID: Obtained
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During Game Surface Tracking
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Outside of Game Surface Tracking
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Calibration Method
592
Pre-tracking
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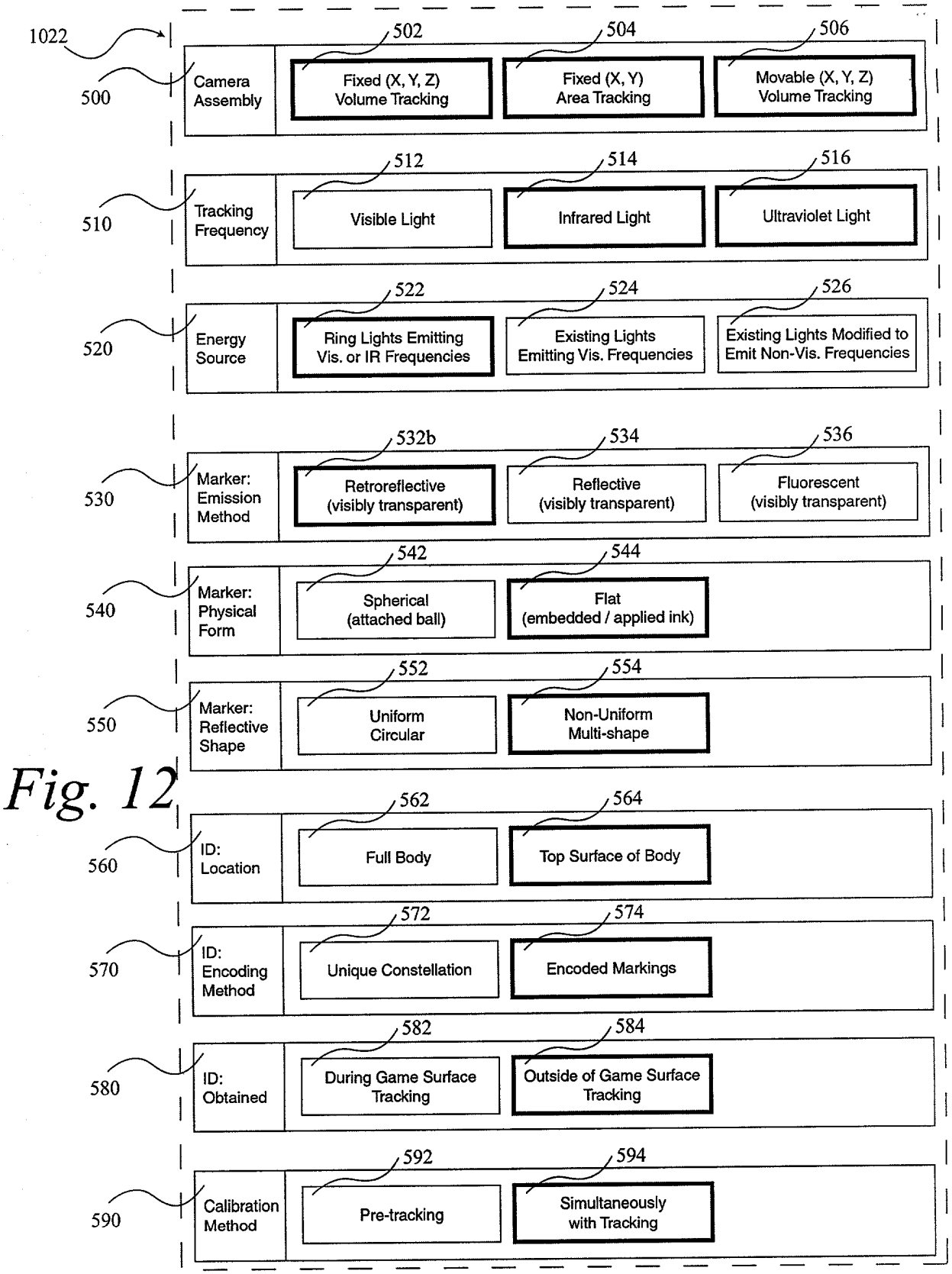
Simultaneously with Tracking

Fig. 11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Tracking Frequency
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Visible Light
514
Infrared Light
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ID: Obtained
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During Game Surface Tracking
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Outside of Game Surface Tracking
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Calibration Method
592
Pre-tracking
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Simultaneously with Tracking

Fig. 12

Document Evidence Ltd.

Fig. 13a

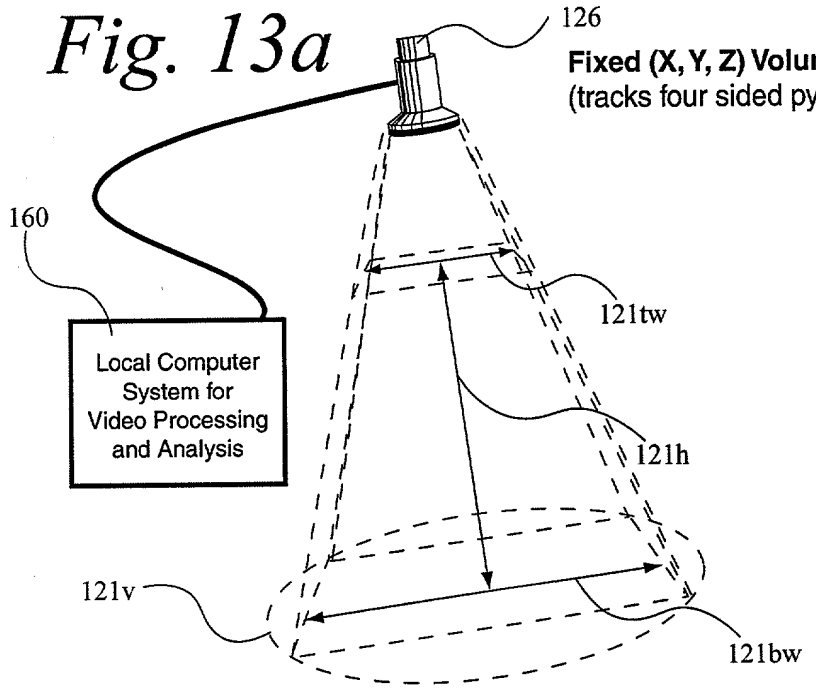
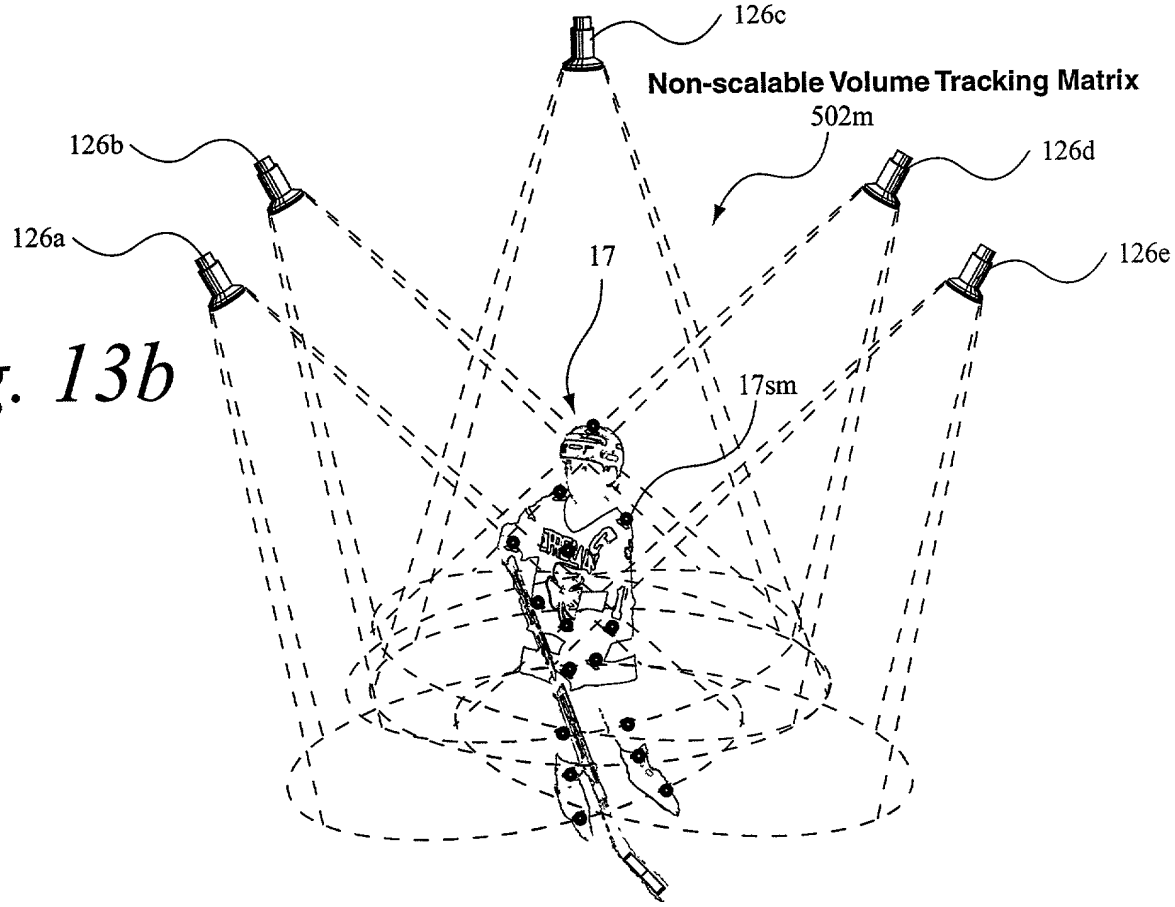
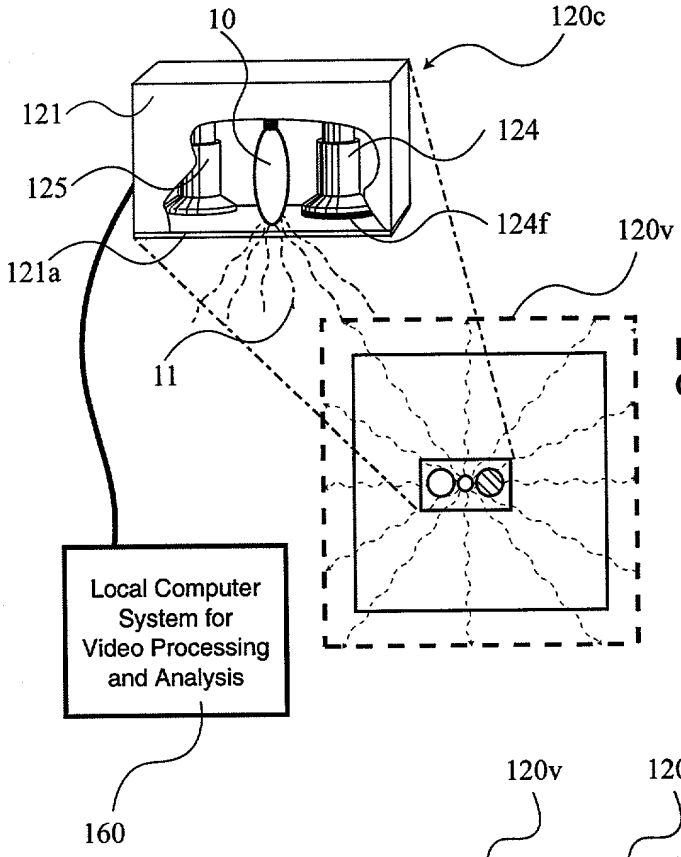


Fig. 13b





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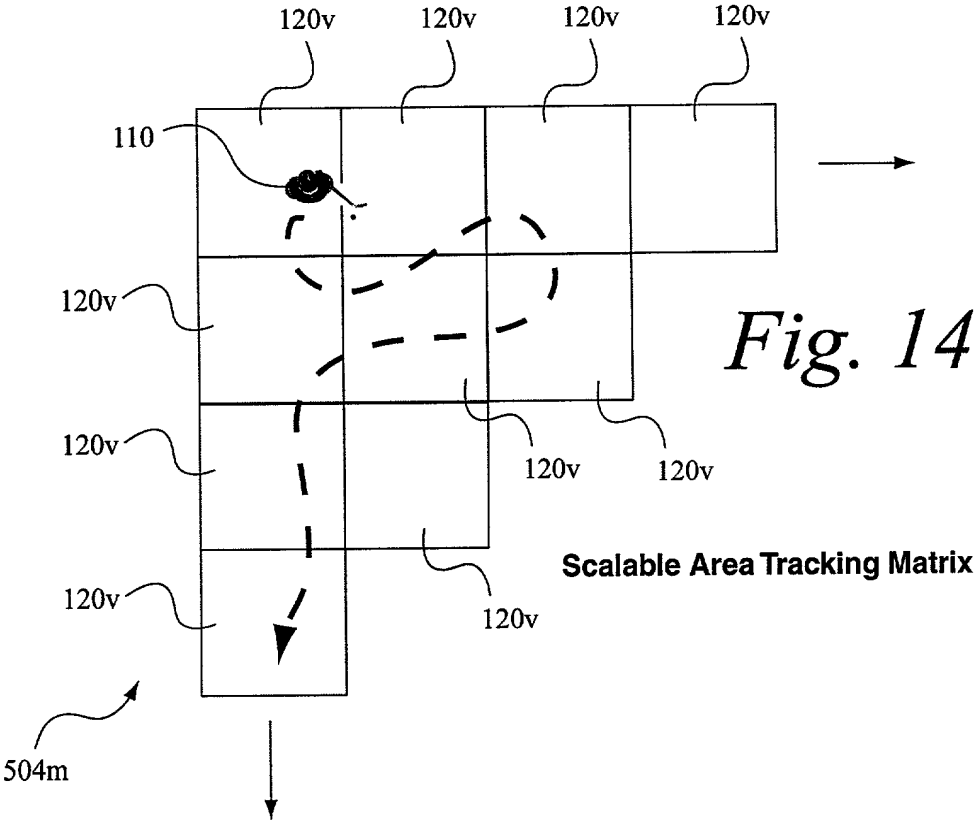


Fig. 14b

Fig. 15a

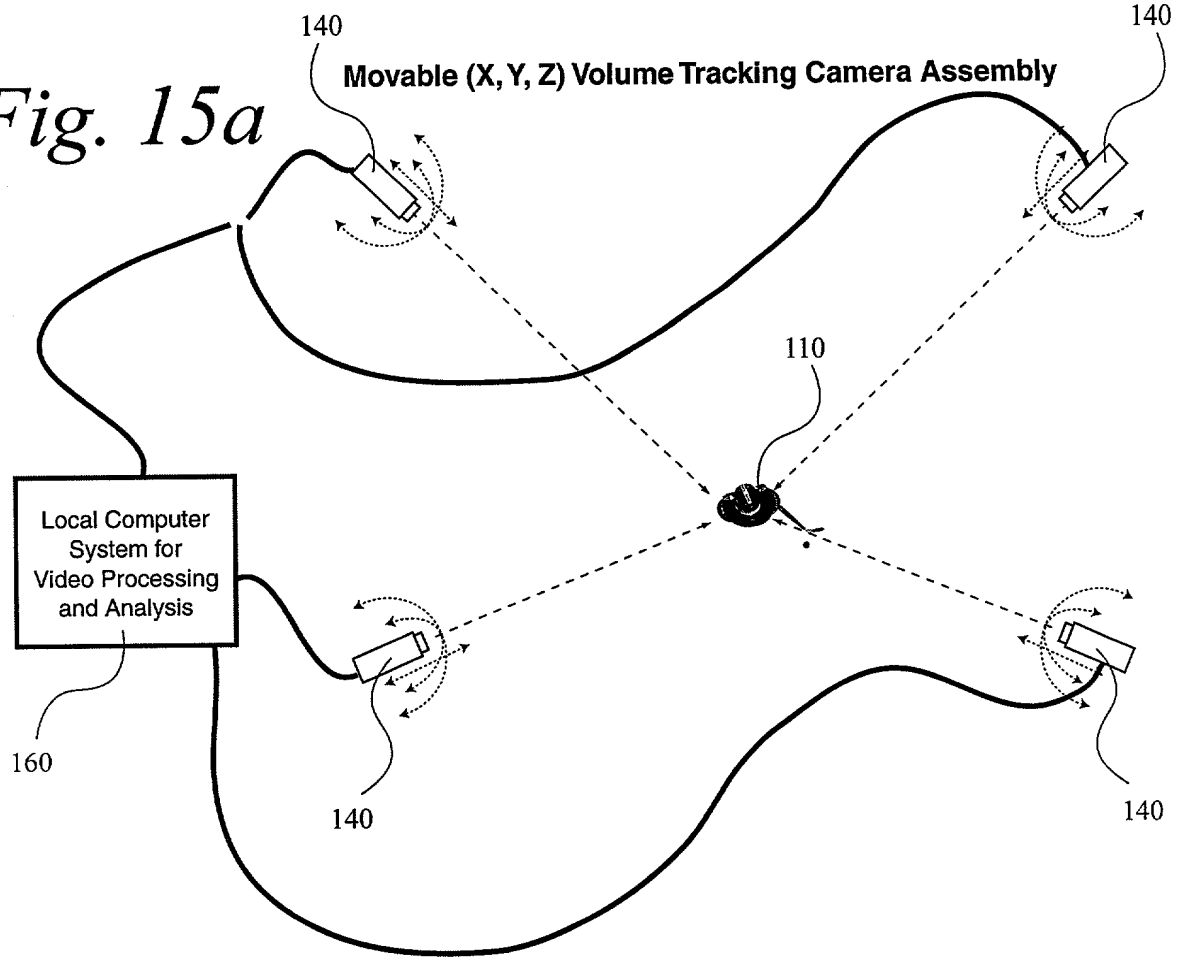


Fig. 15b

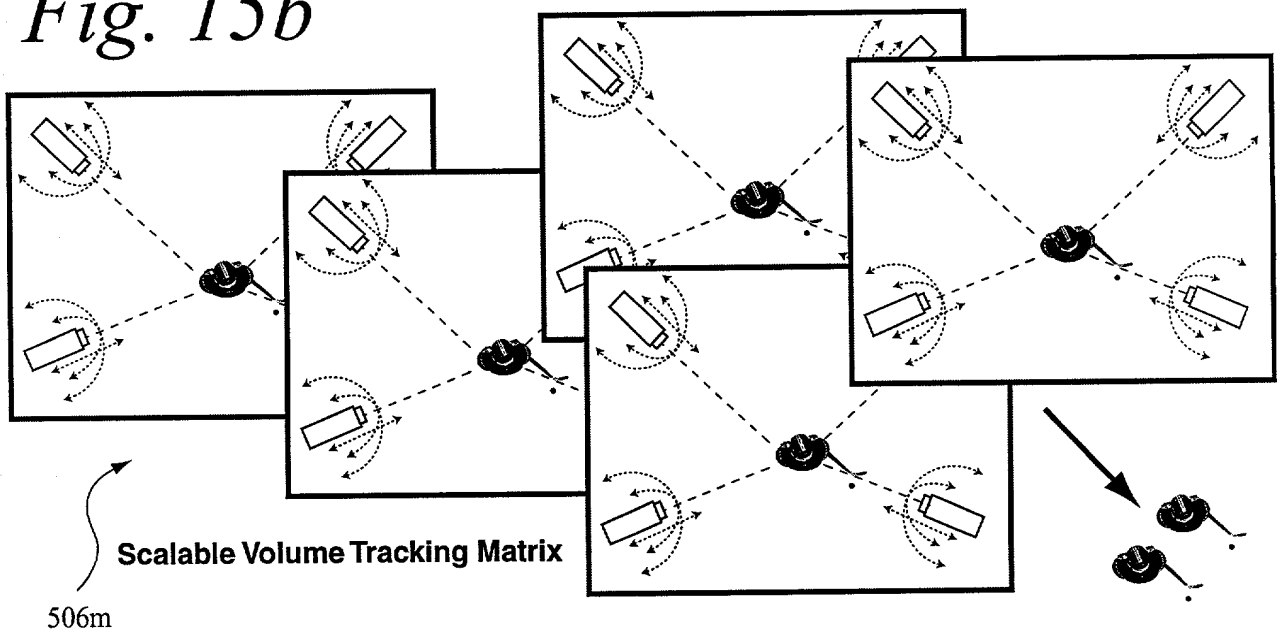


Fig. 16a

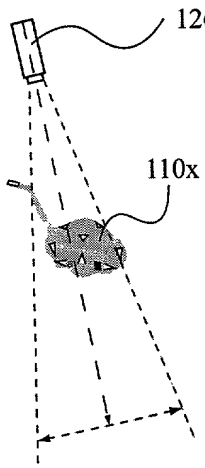
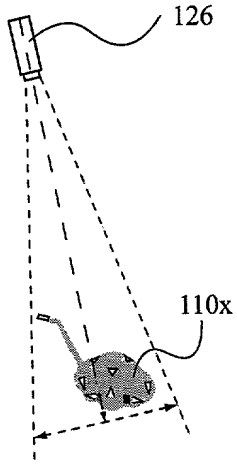
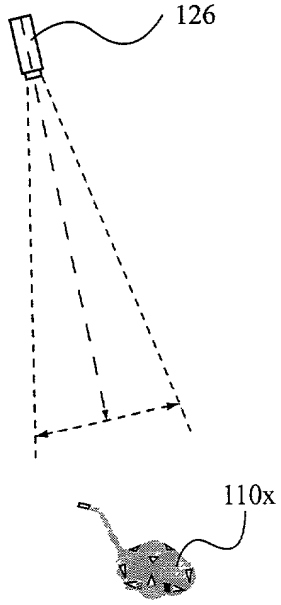
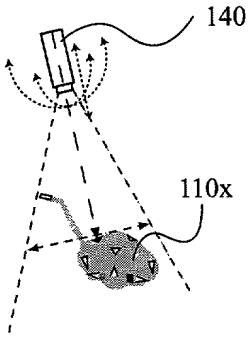
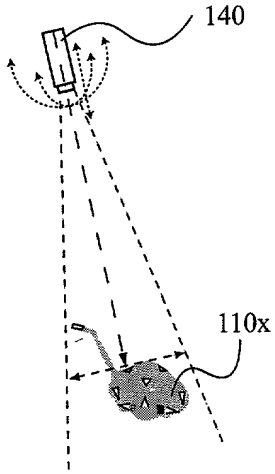
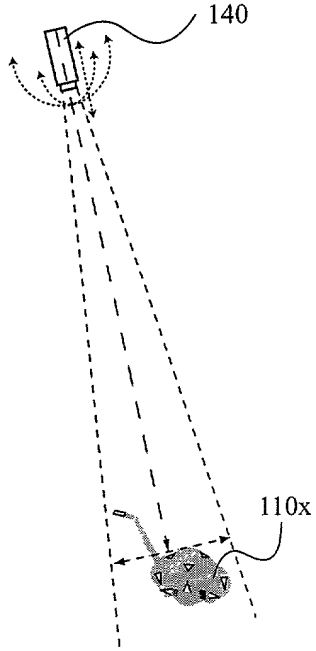
	Player at close range	Player at mid-range	Player at far range
Fixed (X, Y, Z) Volume Tracking Cameras			
Movable (X, Y, Z) Volume Tracking Cameras			

Fig. 16b

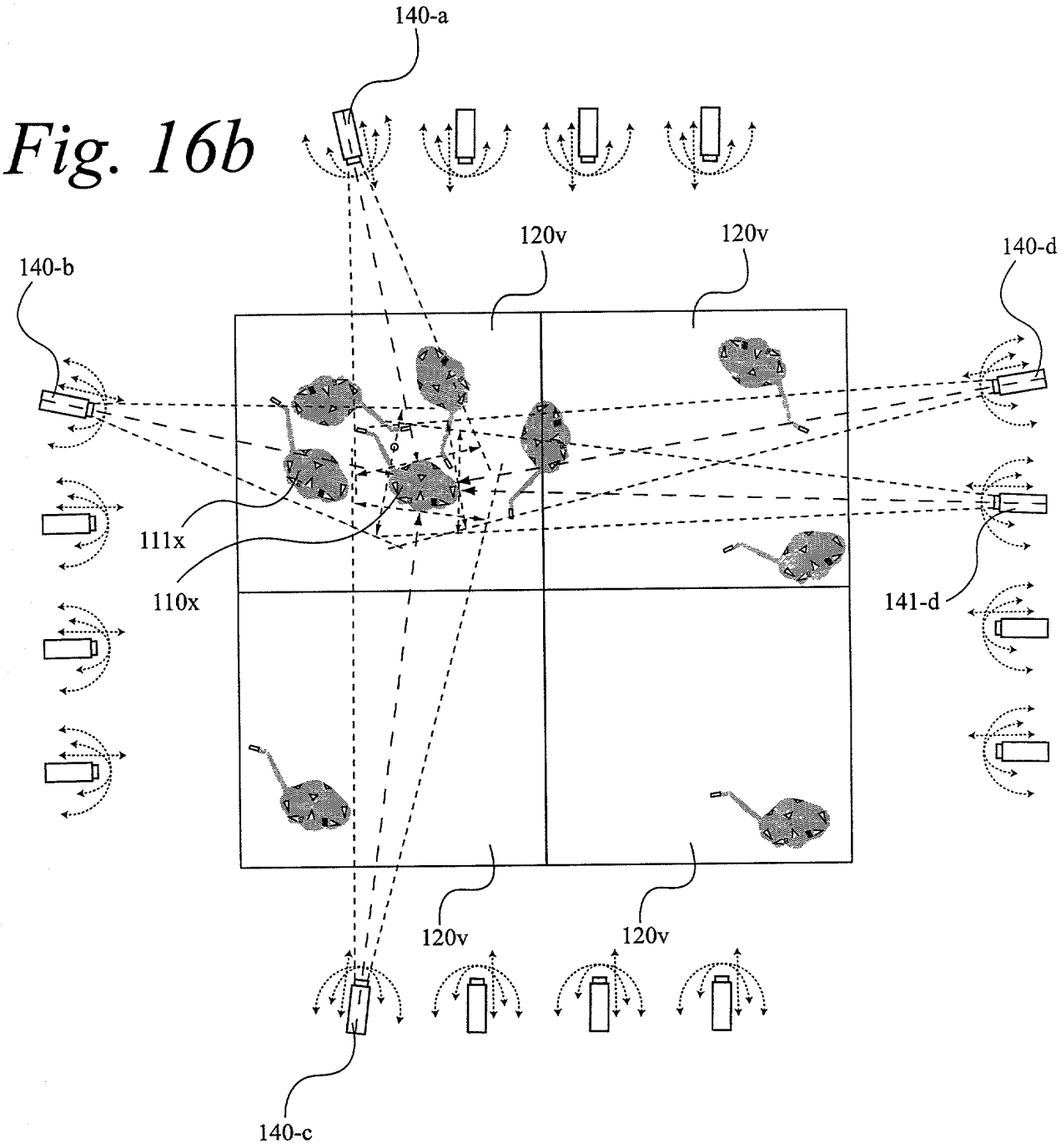


Fig. 17

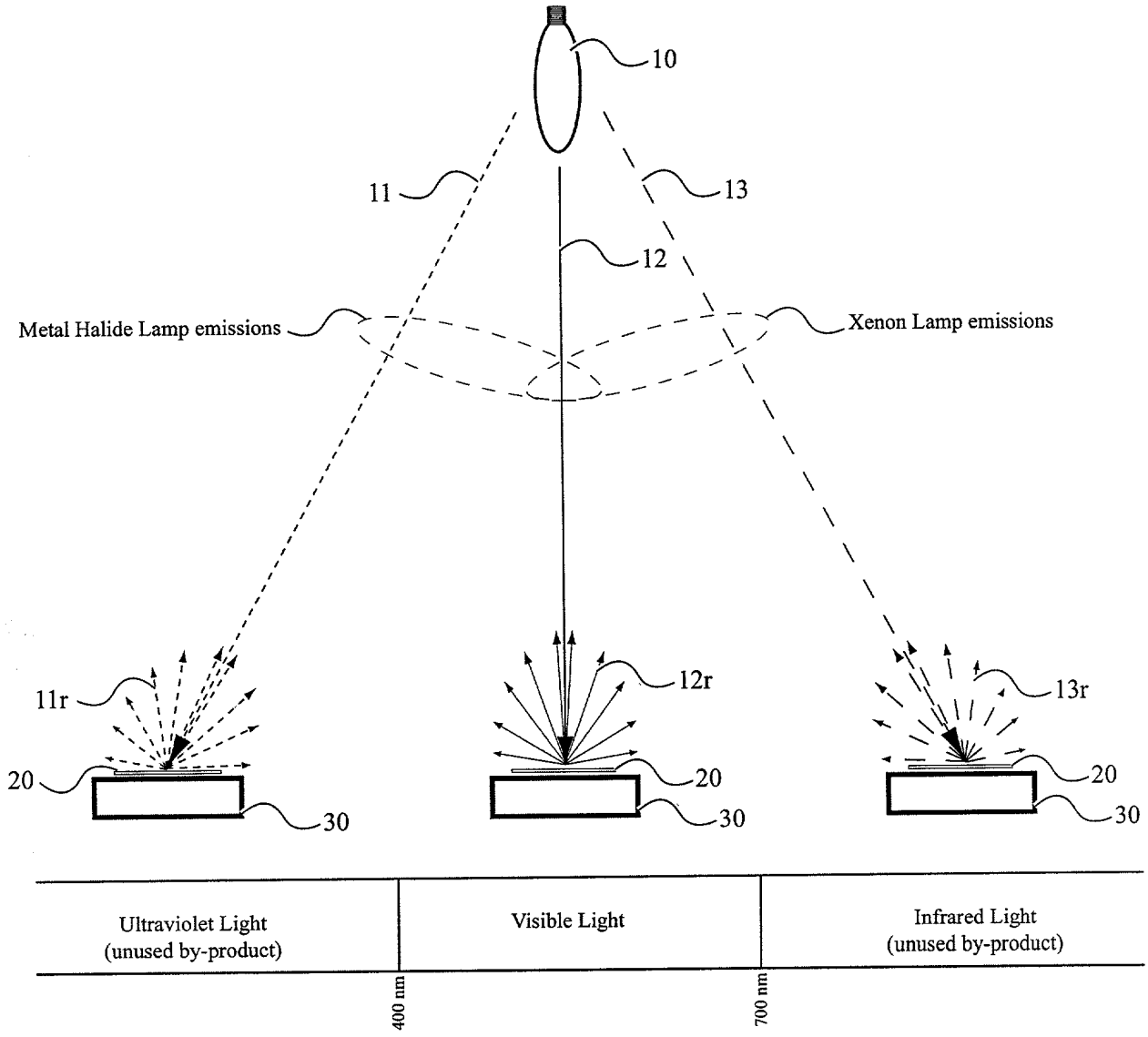
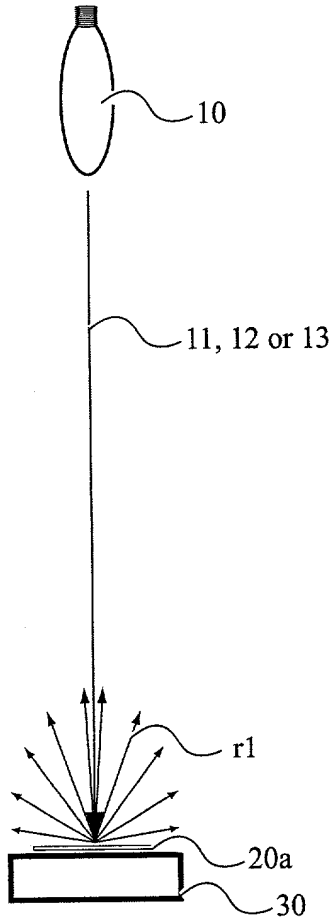
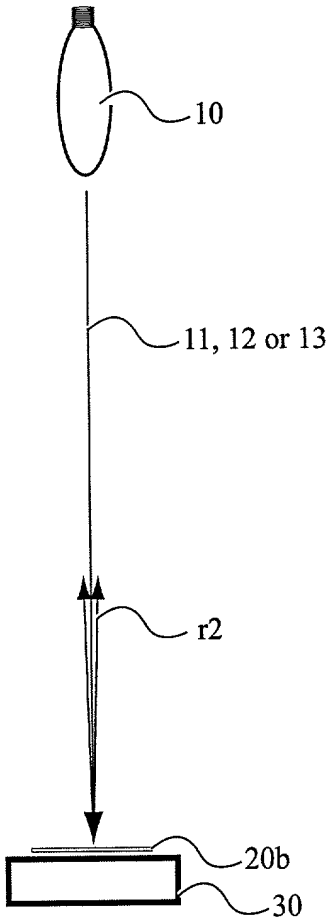

10
11
13
12
Metal Halide Lamp emissions
Xenon Lamp emissions
11r
12r
13r
20
20
20
30
30
30
Ultraviolet Light
(unused by-product)
Visible Light
Infrared Light
(unused by-product)
400 nm
700 nm

Fig. 18a



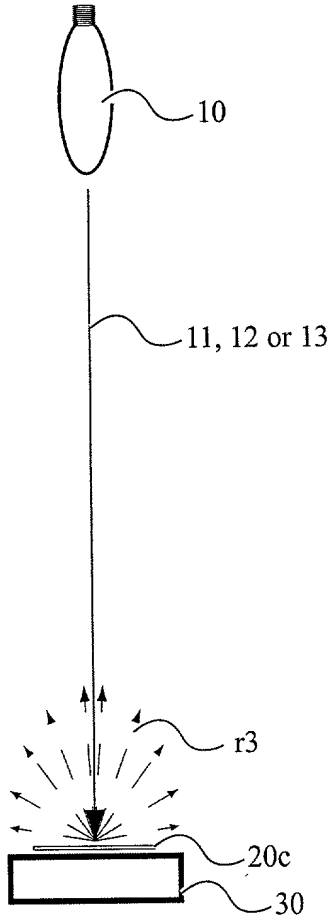
Reflective Material

Fig. 18b



Retroreflective Material

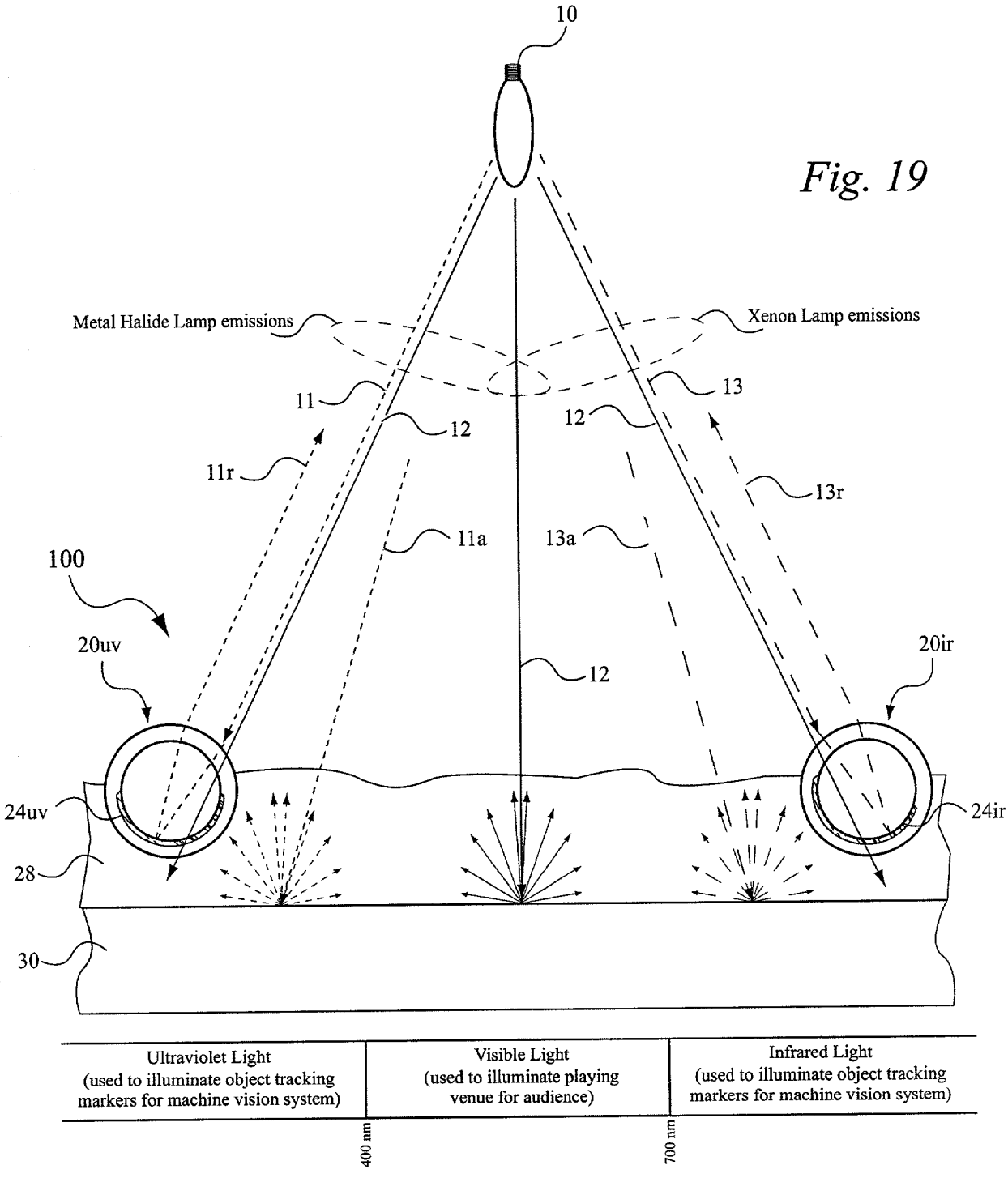
Fig. 18c



Fluorescent Material

Adobe Systems Incorporated

Fig. 19



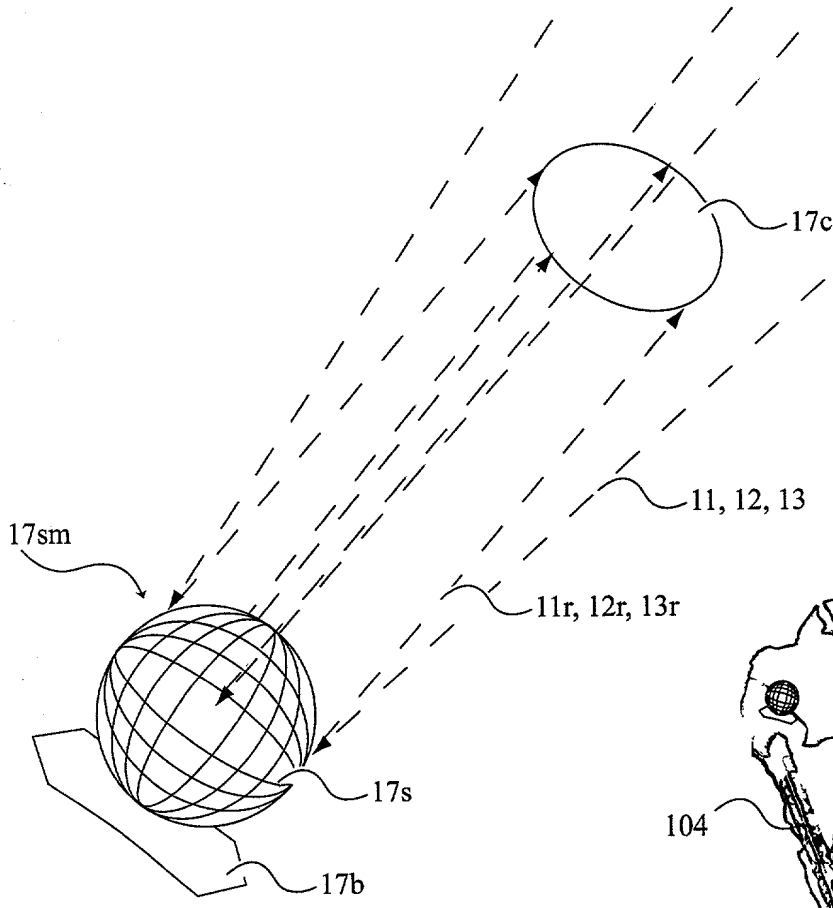


Fig. 20a

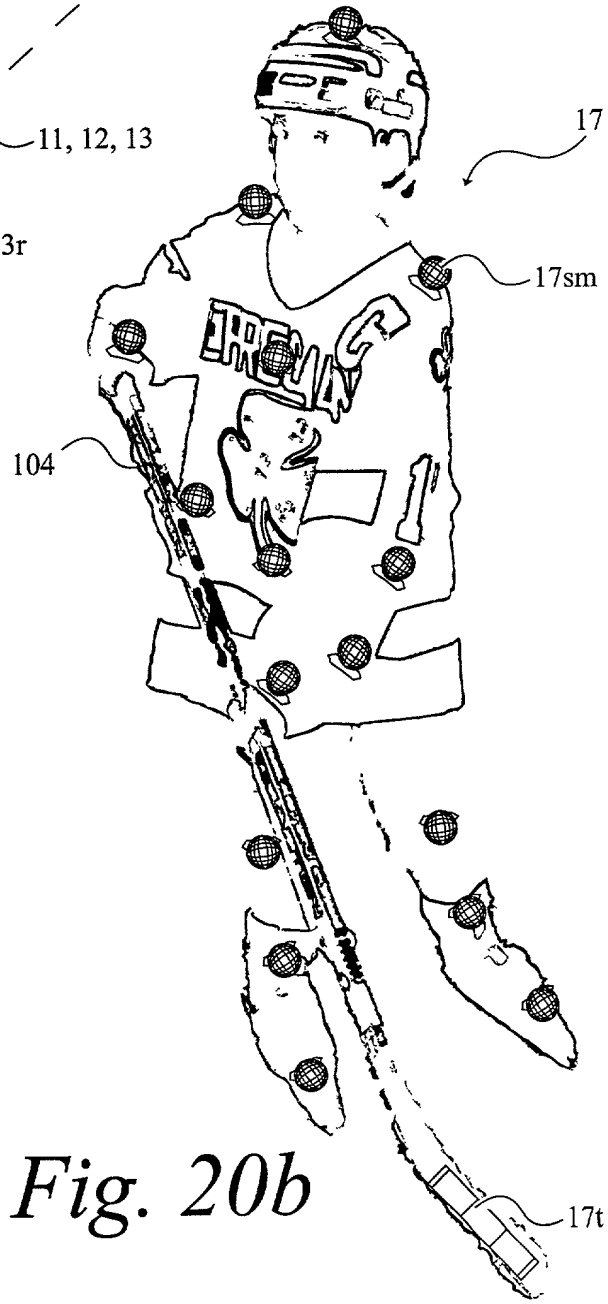


Fig. 20b

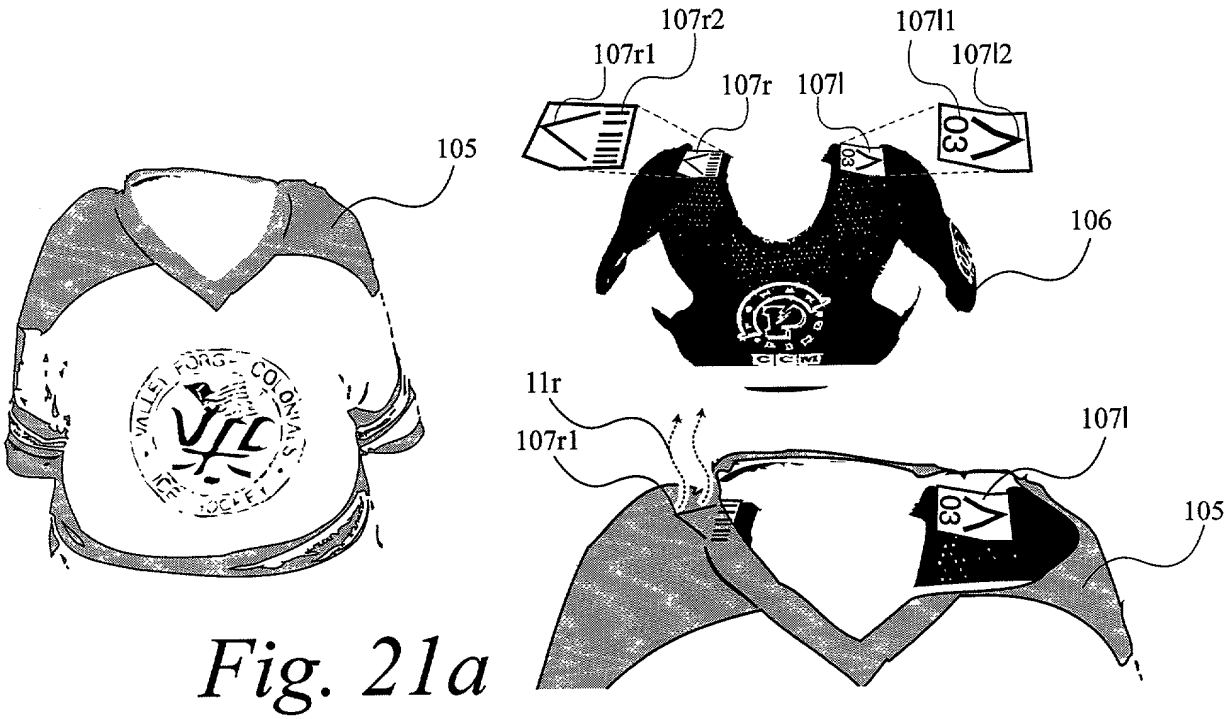


Fig. 21a

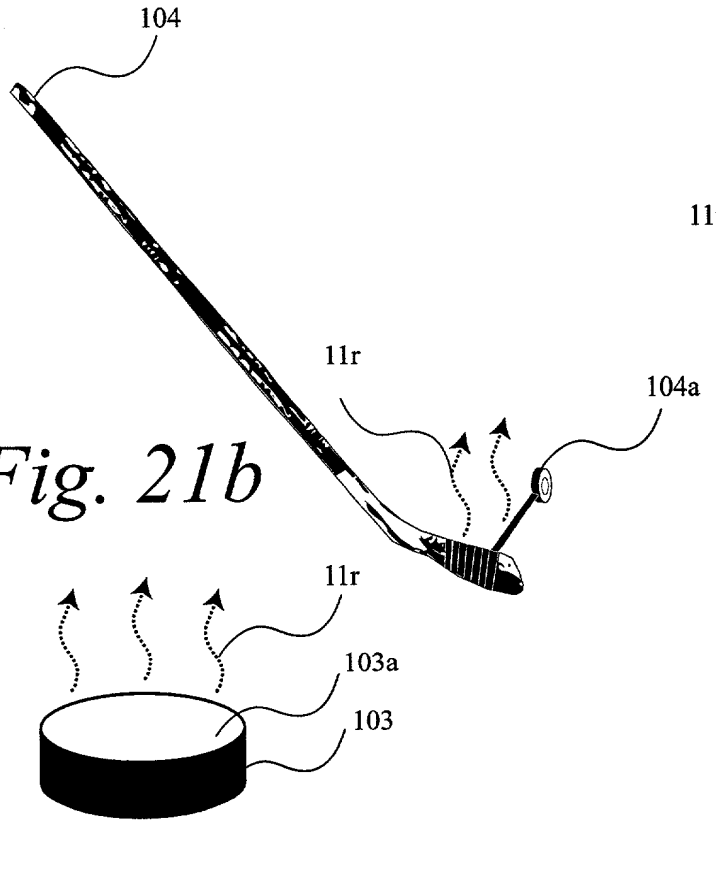


Fig. 21b

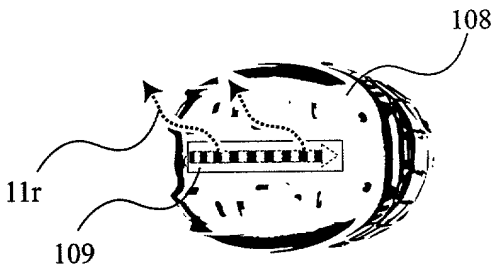
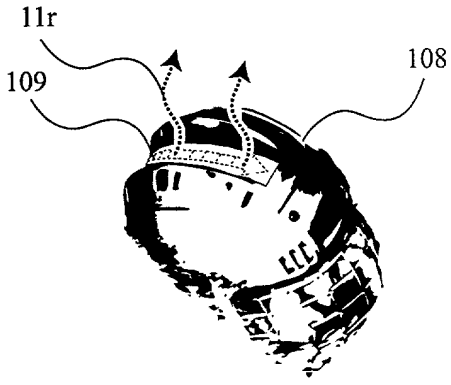


Fig. 21c



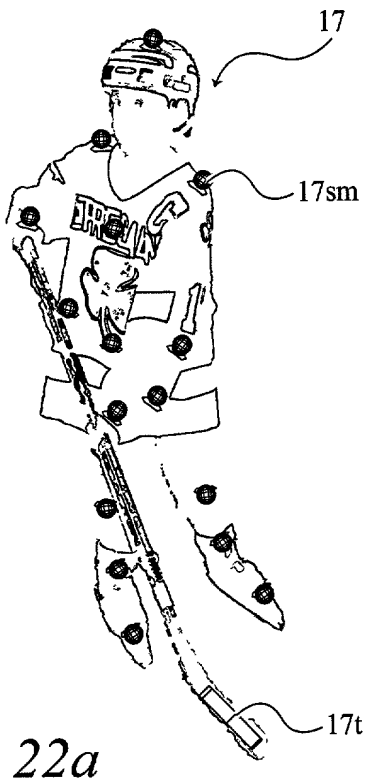


Fig. 22a

Fig.22c

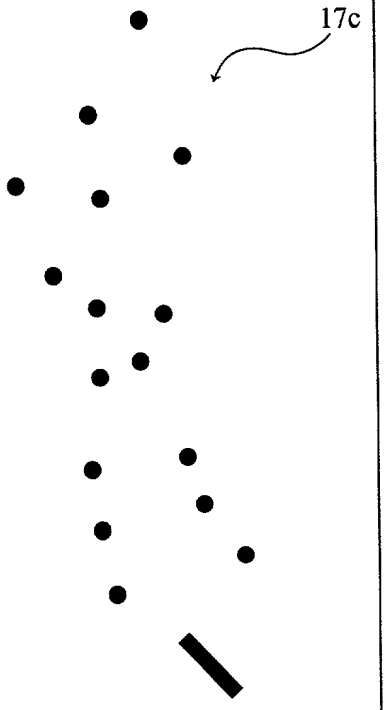


Fig. 22b

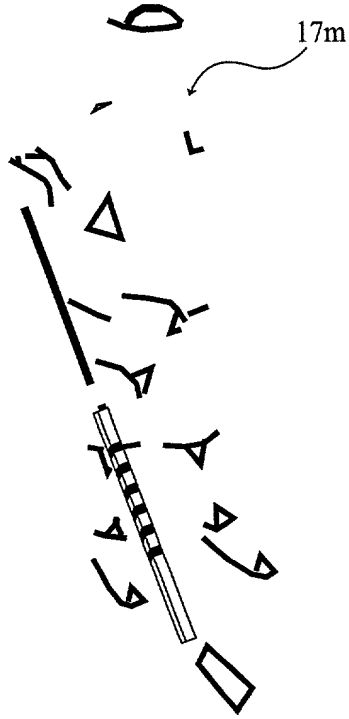


Fig. 22d

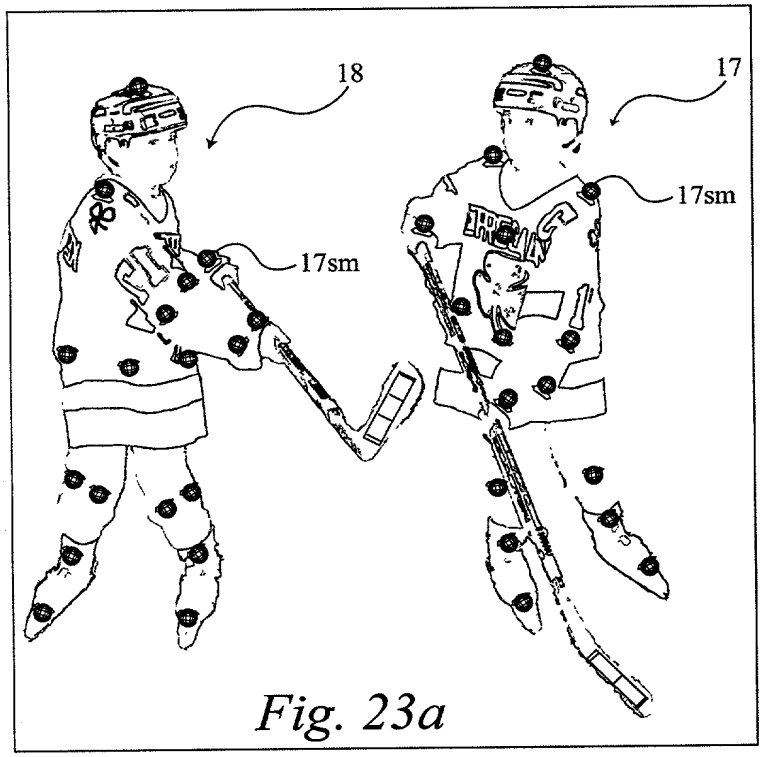


Fig. 23a

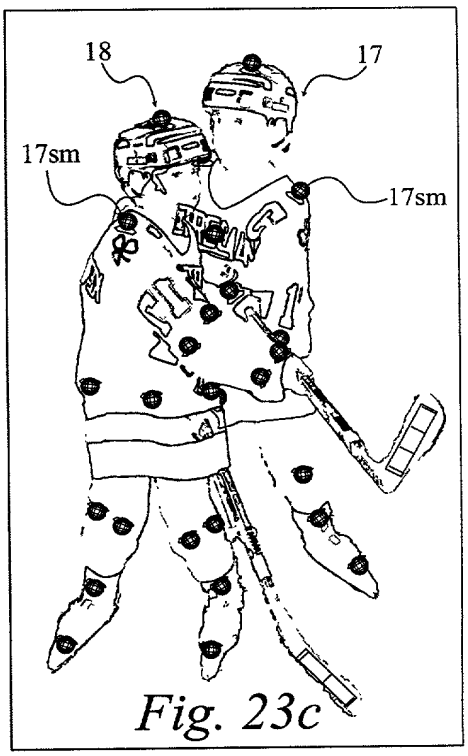


Fig. 23c

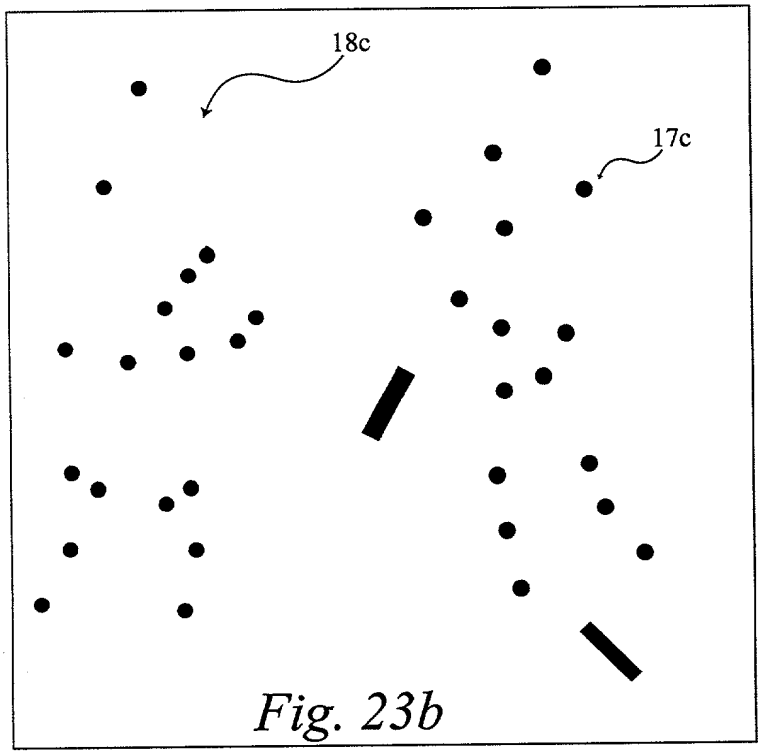


Fig. 23b

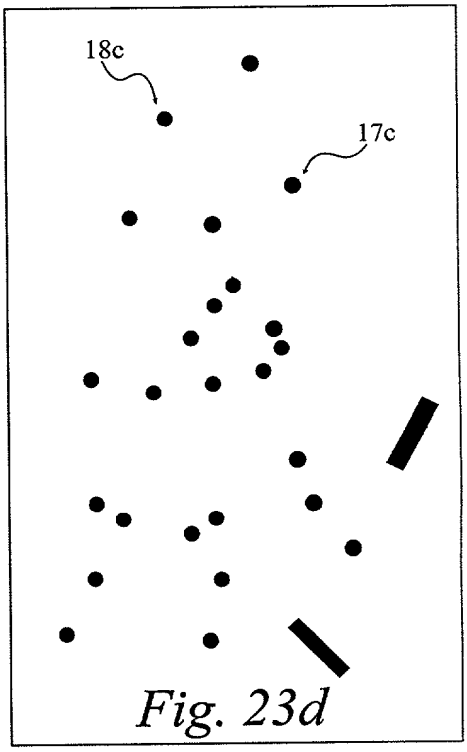
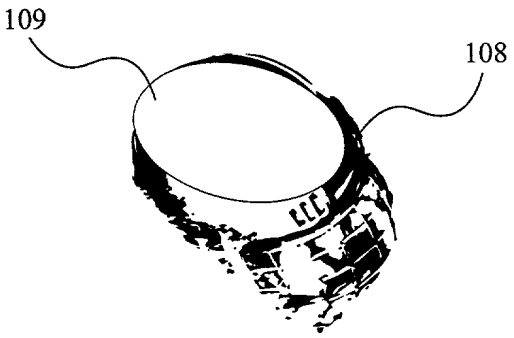
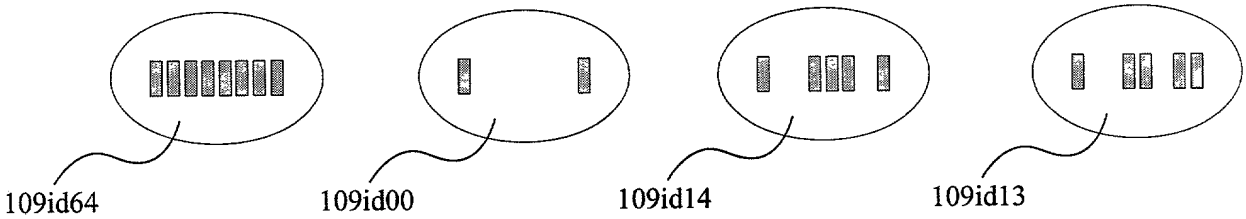


Fig. 23d

Fig. 24





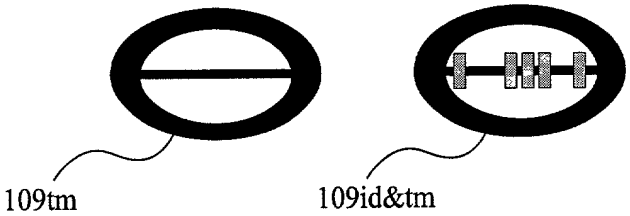
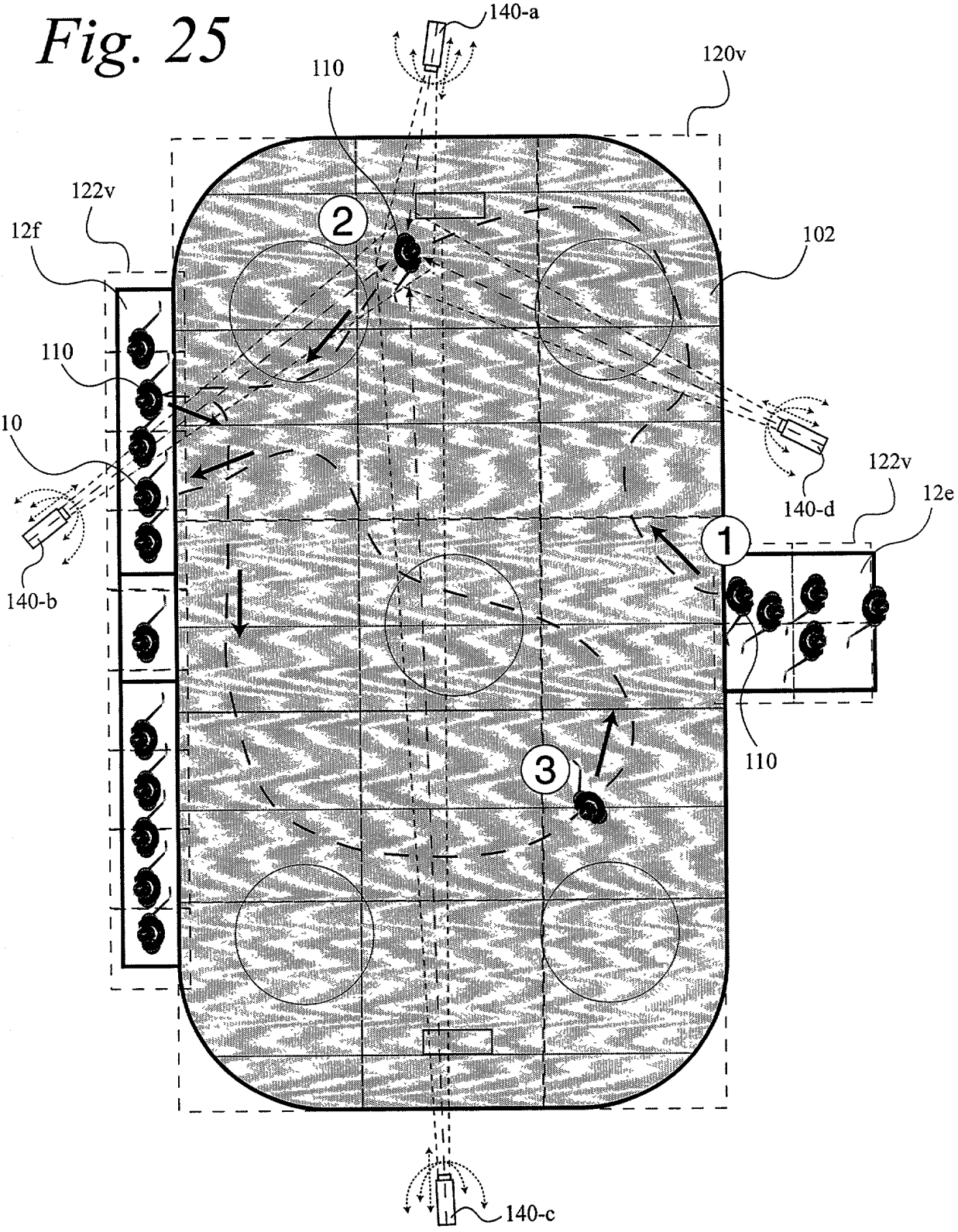


Fig. 25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140-c

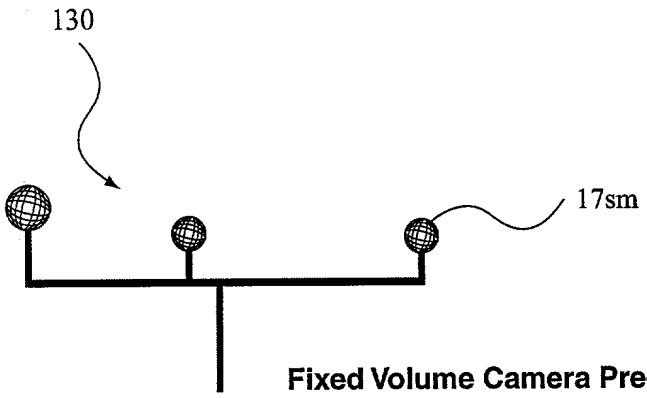
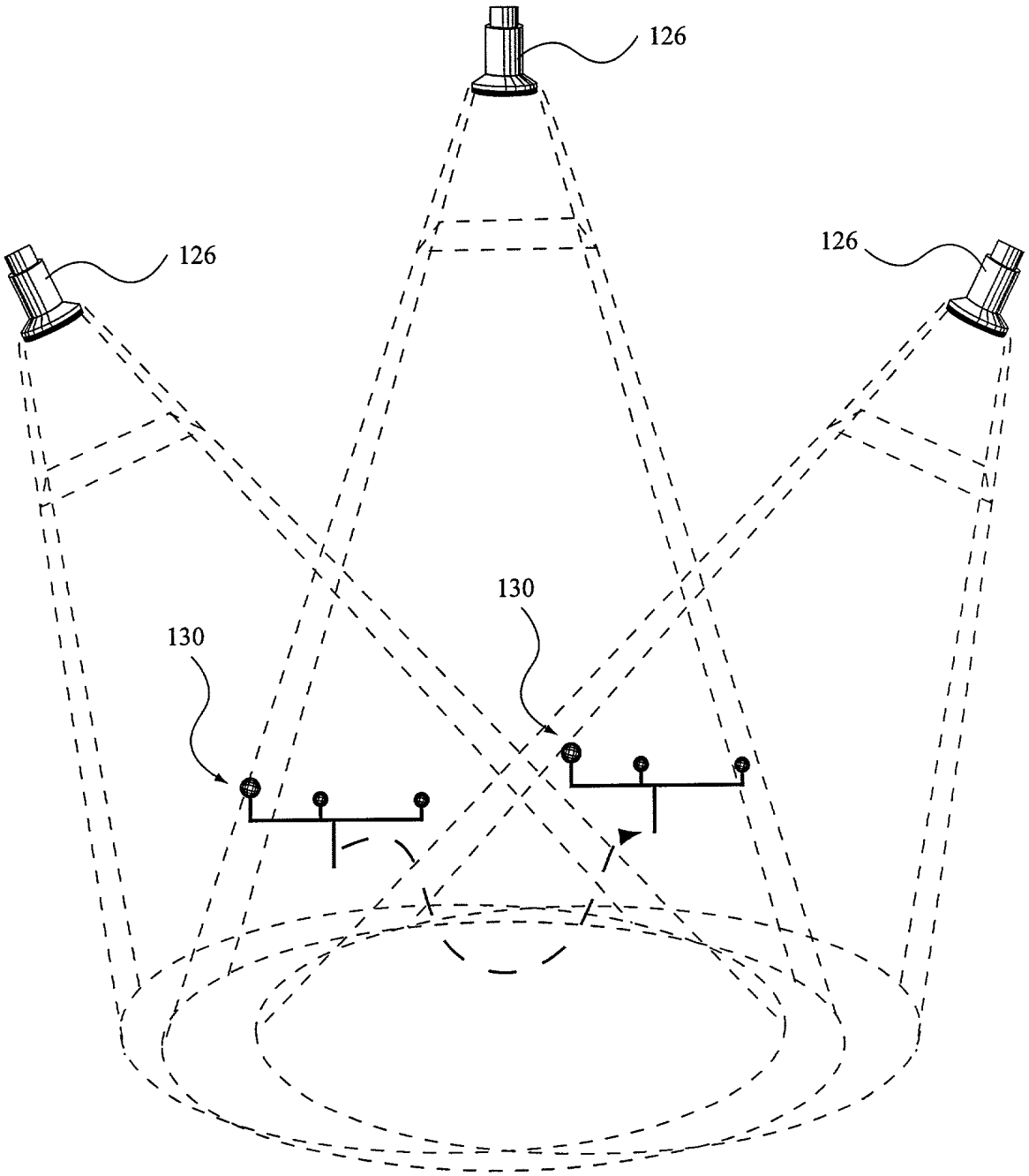


Fig. 26a

Fixed Volume Camera Pre-tracking Calibration



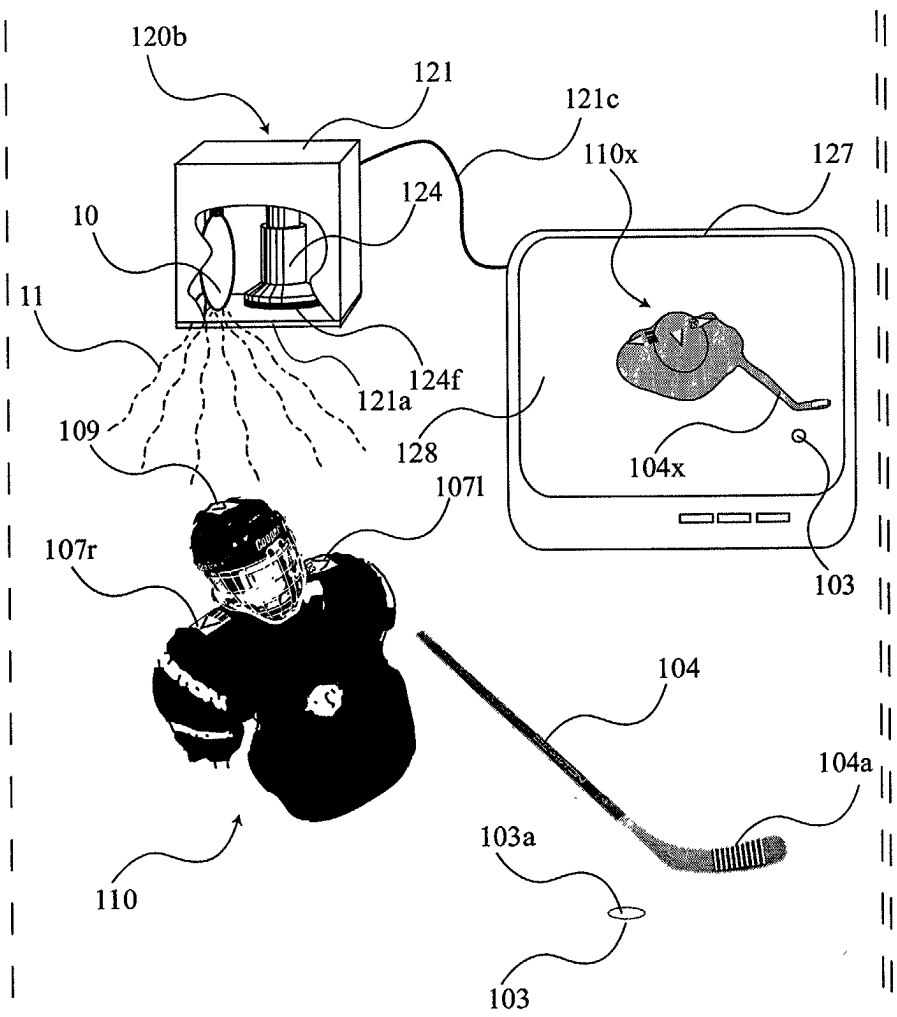


Fig. 27a

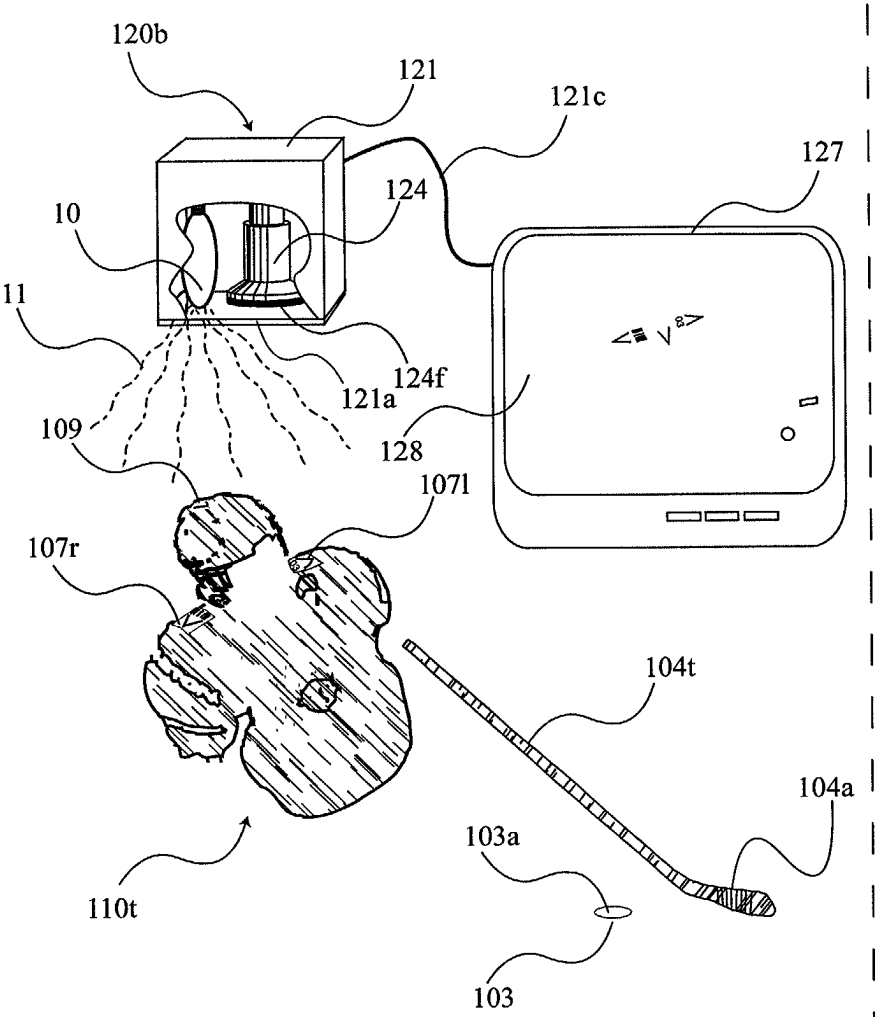


Fig. 27b

20220 "hth9000T

Fig. 28a

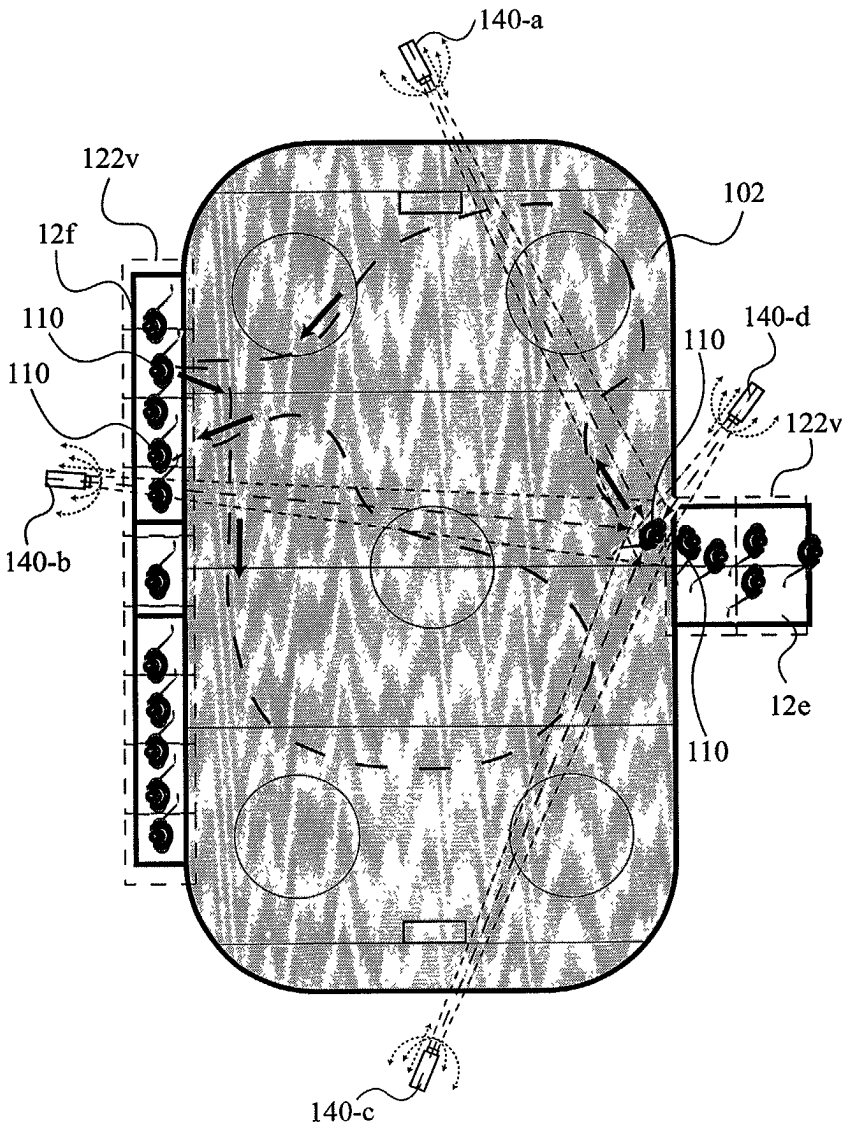
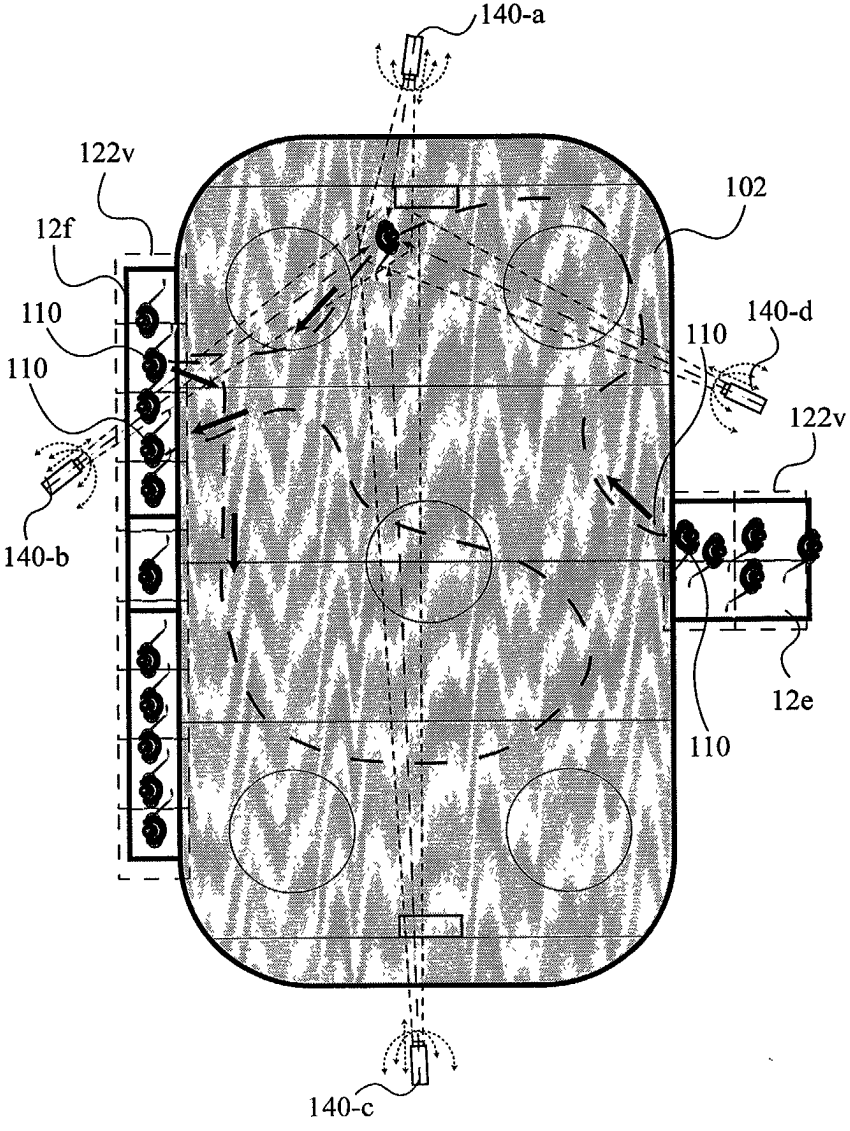


Fig. 28b



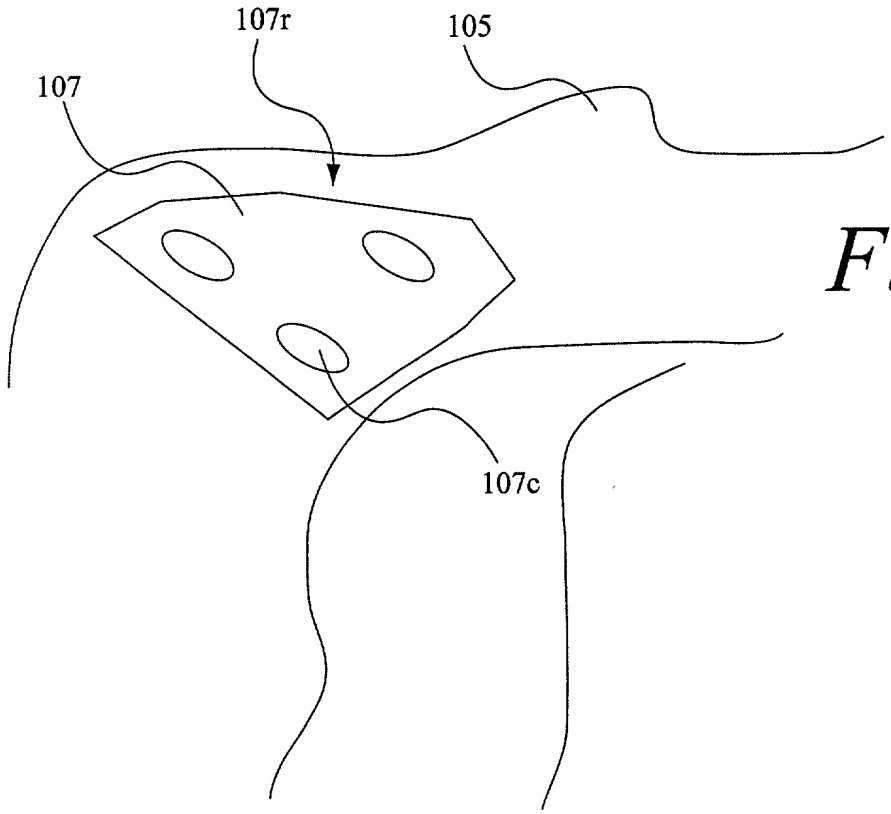


Fig. 29a

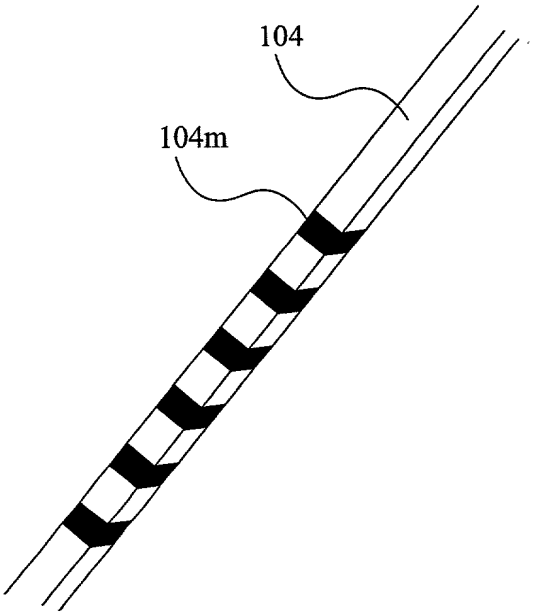
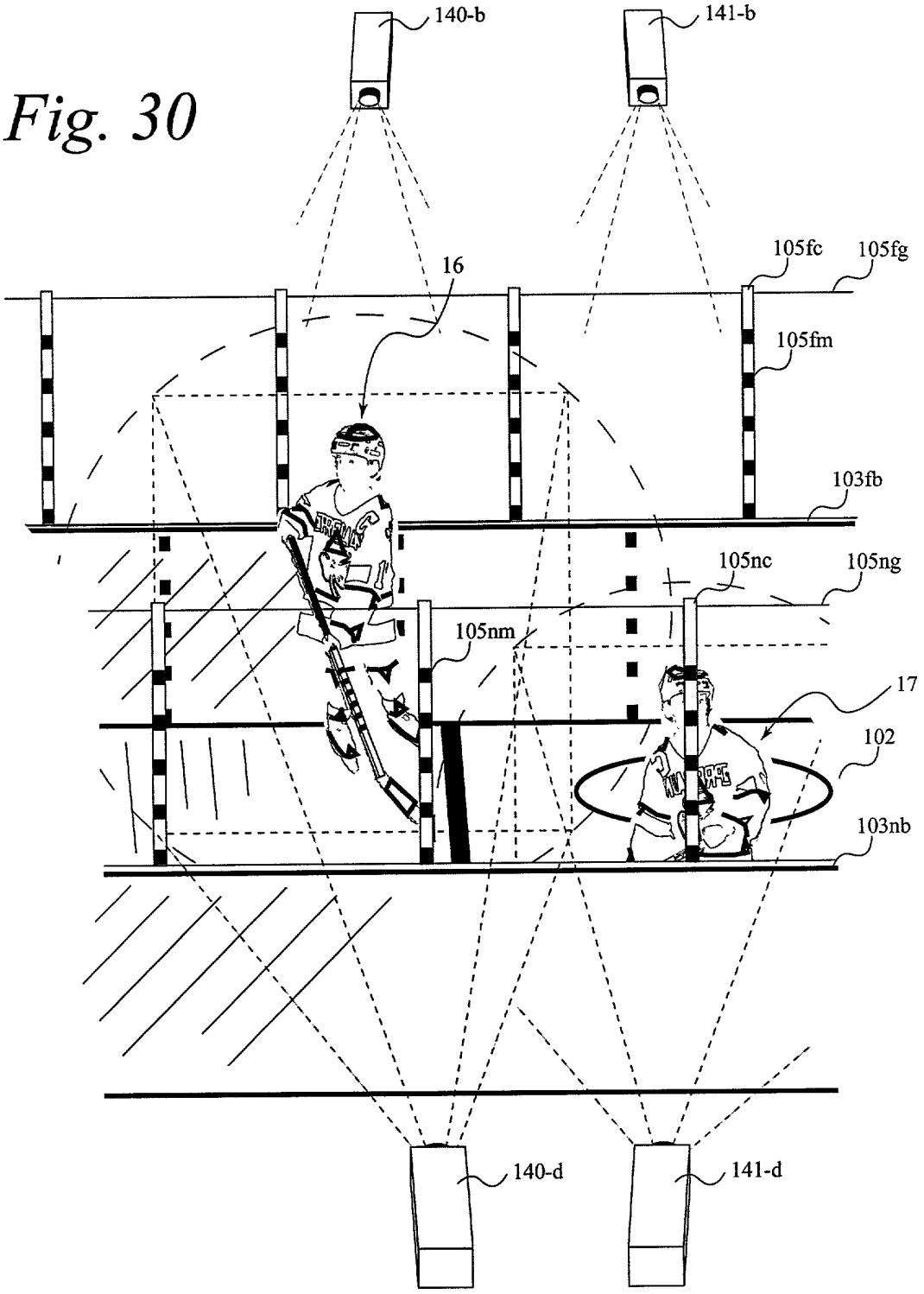


Fig. 29b

Fig. 30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